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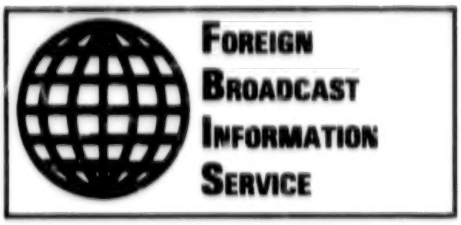

JPRS Report

Science & Technology

USSR: Science & Technology Policy

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Academician Koptyug Discusses Formation of RSFSR Academy

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[Interview with Academician Valentin Afanasyevich Koptyug by V. Ivanitskiy and N. Pritvits (Novosibirsk): "The Science of Compromise. Academician V. A. Koptyug on the Principles of the Organization of the Russian Academy"; date not given]

[Text] **SOVETSKAYA ROSSIYA:** Valentin Afanasyevich, the working group, which is headed by you and was established by the Commission for Science and Technology of the RSFSR Supreme Soviet, has completed its work. With allowance made for the several rounds of discussion at meetings of the Presidium of the USSR Academy of Sciences, this commission examined and approved the document which was submitted by the group and contains the basic provisions on the establishment and activity of the Russian Academy....

V. A. Koptyug: More precisely, the document was adopted as a basis for further work. But the first, important step, as they say, has been taken. As a result of the most difficult discussions and with allowance made for the points of view, which were expressed in the press and in numerous letters addressed to us, it was possible to find approaches which, if they do not satisfy everyone, at any rate will find, so it seems to us, understanding by many people.

SOVETSKAYA ROSSIYA: Honestly speaking, it is hard to believe. When in August of last year SOVETSKAYA ROSSIYA began with an interview with Academician N. Moiseyev the discussion of the Russian Academy of Sciences, hardly anyone expected such a polarity of opinion in the responses that followed.

V. A. Koptyug: The idea of the establishment or, as many people believe, the restoration of the Academy of Sciences of Russia long ago excited the minds of the multinational creative intelligentsia of the Russian Federation and its citizens. Now, when people have begun to talk at the top of their voice about spiritual values, about the conditions of the present-day life of the peoples of Russia, and about their future, among others this dam also burst.

To what is the spread of opinions about the future Russian Academy due? I believe that it is due first of all to the fact that the USSR Academy of Sciences operates on the territory of the republic. Practically all its institutes are located in the Russian Federation. Therefore, some people believe that an independent Academy of Sciences of Russia is not needed. The union academy could take upon itself the solution of all its most important problems.

Without going into details, I will note that this point of view also evoked a wave of disputes because it is difficult on its basis to formulate a coordinated position—the consequences of the fact that the Russian Federation for a long time "served" not its own, but union organs and structures, are too perceptible in our life. Science is no exception here.

The second reason is the increase in the scientific community of the dissatisfaction with the formed structure of the "management" of science in the country. Fearing elements of conservatism and monopolism, which are inherent in any fixed structures, the majority of participants in the discussion spoke in favor of the organization of the Academy of Sciences of Russia on a fundamentally new basis. But each person sees in his own way what they should be. So that it is not worth being scared of polar points of view, it is simply necessary to understand them.

SOVETSKAYA ROSSIYA: To all appearances, your working group was established by a decision of the Commission for Science and Technology of the RSFSR Supreme Soviet in November of last year precisely for this.

V. A. Koptyug: Yes, it should have formulated generalized recommendations on the basis of all the diversity of opinions.

SOVETSKAYA ROSSIYA: I would like, incidentally, to know by name who was a member of it.

V. A. Koptyug: Certainly. Five members of the Commission for Science and Technology of the RSFSR Supreme Soviet are deputies of the RSFSR Supreme Soviet: Chief Scientific Secretary of the USSR Academy of Sciences Academician I.M. Makarov, Academician N.D. Kuznetsov, Corresponding Members of the USSR Academy of Sciences L.N. Lavrov and S.P. Nepobedimyy, and Professor M.K. Magomedov; the three chairmen of the presidiums of the regional departments of the USSR Academy of Sciences: the Ural Department—Academician G.A. Mesyats, the Far Eastern Department—Academician V.I. Ilichev, the Siberian Department—Academician V.A. Koptyug; RSFSR Minister of Higher and Secondary Specialized Education and USSR People's Deputy Academician I.F. Obraztsov. Deputy Chairman of the RSFSR Council of Ministers V.G. Zakharov, First Deputy Chairman of the RSFSR State Planning Committee and USSR People's Deputy N.P. Mashyanov, Chairman of the Commission of the RSFSR Council of Ministers for Youth Affairs and Deputy of the RSFSR Supreme Soviet Corresponding Member of the USSR Academy of Sciences Yu.A. Zhdanov, and RSFSR Deputy Minister of Finance M.A. Kozhevnikov were also members of the working group.

In the list there are many titles, but I cite them exclusively in the interests of the name giving mentioned by you.

We worked, as you see, a short time, but, I dare assure you, extremely intensively. As a result the commission unanimously endorsed the document submitted by us on

the basic principles of the organization and functioning of the RSFSR Academy of Sciences and its goals and tasks.

SOVETSKAYA ROSSIYA: I want very much to ask simply: What are they? But, it seems, simplicity is not for this case. Tell us, please, to what extent your group found mutual understanding at the USSR Academy of Sciences. It is no secret for anyone: the idea of establishing the Russian Academy was greeted at it in a guarded manner....

V. A. Koptyug: Yes, it is necessary to answer this question first of all. A balanced position, which satisfied both sides, gradually crystallized during the discussions. If you formulate it in a few words, this is the establishment of the Russian Academy at the first stage without institutes.

What principles are incorporated in this formula? First of all the common opinion: it is dangerous to destroy the formed structure of the "large" academy, which is playing an important role in our country. And the transfer of a significant number of large, formed institutes to the future academy would predetermine the arrangement of their formation—the reproduction of traditional structures, which at the present stage would be incorrect.

The decision, of course, is unusual. I will not hide the fact that back half a year ago I myself found it hard to imagine the Academy of Sciences without its own institutes. The established forms prevail over us, that is a fact. But with the narrowing of the concept of the establishment of the Academy of Sciences of Russia I came to the conclusion that precisely those people, who regard the absence within it at the stage of formation of large scientific complexes not as an evil, but as a good thing, are right.

Being for 10 years the head of the presidium of the Siberian Department of the USSR Academy of Sciences, I know not by hearsay what an amount of trouble rests on one's shoulders just at the level of the support and development of already existing structures. This trouble prompts travel in a rut and complicates very much the changeover to fundamentally new forms of the organization of science. In general, when defining the concept, "traditions" had to be rejected.

SOVETSKAYA ROSSIYA: But the idea "the Russian Academy without institutes" was not among the popular ones during the discussion in the pages of the press, in scientific collectives....

V. A. Koptyug: I am certain the everyone, who will take the trouble to look into the question really deeply, with allowance made for all aspects of the problem, will support us. I am convinced that at the first stage of the formation of the Russian Academy, I want to emphasize these words, the correct approach was chosen. I believe that our society has already arrived at the realization that resolve should be combined with circumspection. One should not draw a "demarcation" line between the USSR Academy of Sciences and the RSFSR Academy of Sciences, thus destroying the established contacts of institutes.

In the discussed document it is stressed that the academy being established in its activity will rely on scientific research institutions that are subordinate to the RSFSR Council of Ministers, that is, are financed through it. Today these are the three regional departments of the USSR Academy of Sciences—the Ural, Siberian, and Far Eastern Departments, and VUZ [higher educational institution] and sectorial science of the Russian Federation. It is also proposed to convert to "dual" management, with financing through the RSFSR Council of Ministers, the scientific centers of the USSR Academy of Sciences in the northern, central, and southern zones of the European part of the USSR, with the exception of those located in Moscow and Leningrad Oblasts. All this will also constitute the support for the future Russian Academy and, of course, for the government of Russia.

The basic principle of the activity of the new academy will consist in the fact that not administrative methods, but methods of special-purpose financing on a competitive basis through scientific research programs and projects will begin to be used as the main lever of the uniting and coordination of the forces of Russian science.

Such a version of the "management" of science is still just being assimilated in our country, although it has been used for a long time and successfully in many countries.

In the present situation it is necessary first of all to mobilize the potentials which already exist in Russia. For many thousands of doctors of sciences and a large army of candidates of sciences work at the organizations subordinate to the RSFSR Council of Ministers just in the area of the social, natural, and technical sciences. Their unification for the accomplishment of priority tasks and the creation for them of conditions for creative activity, including the promotion of the development of the material base, are the most effective means of organizational activity of the future academy.

SOVETSKAYA ROSSIYA: The idea is clear. At the first stage of the organization of the Russian Academy of Sciences a compromise was found. It is possible to argue how constructive it is. But, while reading the document drawn up by your group, you notice that some confusion remained with respect to Moscow and Leningrad. The scientific centers located there do not come under "dual subordination." Why such selectivity, Valentin Afanasyevich? For Moscow and Leningrad have not yet withdrawn from Russia, have they?

V. A. Koptyug: It is necessary to take into account that Moscow and Leningrad Oblasts have a special status in our country. Moreover, the basic potential of the USSR Academy of Sciences is located in Moscow and Leningrad. It is natural that it is necessary to interact actively

with them, but, taking into account the agreed on "division of spheres of influence," one should rely here first of all on the institutions of science, which are subordinate to the RSFSR Council of Ministers.

SOVETSKAYA ROSSIYA: Does it follow from what has been said that the regular staff of the academy will be formed only of scientists who work at scientific institutions that are subordinate to the RSFSR Council of Ministers?

V. A. Koptyug: No. In the document it is recorded that the election of full members and corresponding members of the Academy of Sciences of the Russian Federation is conducted among prominent scientists who work at any organization that is located on the territory of the RSFSR. I will note that the election to the future academy of representatives of scientific collectives of union subordination is another of the important elements of the formation of the conditions for the effective interaction of the "large" and republic academies in the accomplishment of the priority tasks of the RSFSR.

SOVETSKAYA ROSSIYA: In the formed situation you would not, as they say, envy the working group. Nevertheless we will consider that the tricky question of the delimitation of the spheres of influence and activity between the USSR Academy of Sciences and the Russian Academy of Sciences will be settled. With what, then, will the latter begin its work, what are its goals and tasks?

V. A. Koptyug: We believe that the Academy of Sciences of the Russian Federation is called upon to promote not only the development of basic and applied research in priority directions and the speeding up of the implementation of the achievements of science in practice, but also the formulation and implementation in the RSFSR of a unified scientific and technical, ecological, economic, social, and cultural policy.

If we translate this quite dry formula into the language of writing on current affairs, the academy being established should promote with all its strength the preservation and subsequent flourishing of Russia and its residents. Such are the goals.

Having become involved in the accomplishment of urgent specific tasks that are associated with the process of perestroyka, society somehow has begun to forget that in the long term perestroyka, including the development of the spiritual sphere, is impossible without reliance on science and on scientific and technical progress. Owing to a number of well-known reasons this is of particular importance for the Russian Federation.

The most important organizational task is the integration of academic, VUZ, and sectorial science of Russia. The division of science into three spheres is one of the greatest strategic miscalculations of scientific and technical policy of our country. Precisely for this reason the task of ensuring the integration of the three detachments of Russian scientists through new organizational forms and special-purpose financing is being put in first place for the future Academy of Sciences. The implementation of a unified scientific and technical policy in Russia is simply impossible without this.

At the stage of formation it is also worth thinking about what organizations the new academy will need first of all. In the opinion of the working group, the ones, which contribute to the performance of the integrating function, should be them. These can be interdisciplinary scientific research institutions, modern structures of the information support of science, the national economy, and culture, centers of the collective use of single-design equipment, and republic and interdepartmental centers and organizations, which promote the acceleration of scientific and technical progress.

The joint experience of academic science and the higher school in the matter of training personnel, which has been gained today, should undergo development. It seems to me that it is necessary to agree to an experiment, having united in one of the regions of the republic academic institutions with the scientific and educational systems of the higher school into a unified complex. Of course, such an experiment should be carefully prepared, but the conditions for it, in the opinion of many people, have ripened.

SOVETSKAYA ROSSIYA: Valentin Afanasyevich, the emphasis on the integration and consolidation of all the scientific forces of the RSFSR today, when the centrifugal forces in society are so great, is undoubtedly very urgent. It is also possible to welcome the drawing of questions of education into the sphere of attention of the future academy. But have you not missed behind all this the necessity of strengthening the humanities directions in science and expanding the contacts of science and culture? For the formation of the proper store of civic spirit for the overcoming of the indifference or else the cynicism with respect to one's native land and one's people is possible only in this direction.

V. A. Koptyug: No, this was not forgotten. The intensification of the development of humanities directions is among the priority tasks. There is particular attention to the directions which promote the preservation and development of the national cultures of peoples and the harmonization of interethnic relations. In our opinion, serious attention should also be devoted to the humanities wing when forming the regular staff of the Academy of Sciences of Russia.

I believe that one of the goal programs of the future academy should be devoted to the development of the humanities. It is necessary to examine carefully and to conduct literally an inventory of the entire scientific potential of the RSFSR in this area for the purposes of its integration and strengthening.

SOVETSKAYA ROSSIYA: Will writers be elected to the Russian Academy?

V. A. Koptyug: I think that this would be of serious importance for the humanization of science as a whole.

SOVETSKAYA ROSSIYA: Now we would like to touch upon questions of the proposed structure of the Academy of Sciences of Russia....

V. A. Koptyug: The establishment at one time of the Siberian and then the Ural and Far Eastern Departments of the USSR Academy of Sciences made it possible to find a promising regional approach to the organization of science on the enormous territory of the RSFSR. Taking into account the existing experience and specific nature of the economic, social, and national problems of various regions of the Russian Federation, it is deemed expedient to form the organizational structure of the new academy with an orientation toward the economic regions of the RSFSR.

There are 11 such regions—the Northern, Northwestern (including Leningrad), Central (including Moscow), Volga-Vyatka, Central Chernozem, Volga River, Northern Caucasus, Ural, Western Siberian, Eastern Siberian, and Far Eastern.

In the economic regions it is proposed to establish regional scientific coordinating councils of the Academy of Sciences of Russia. Not only the founding members and members of the Russian Academy of Sciences, who work in the given region, but also representatives of all three spheres of science, who are most authoritative on the scientific level and are not members of the Academy of Sciences, will be members of them. It is proposed to assign to them the analysis of regional problems, the elaboration of recommendations on the means of developing science and scientific and technical progress, and the formation of regional blocks of the general goal programs of basic and applied research of the Academy of Sciences of Russia.

The scientific council for the Siberia Comprehensive Scientific Research Program, which operates under the Siberian Department of the USSR Academy of Sciences, can serve as a prototype of such councils.

In the opinion of the working group, it is necessary to begin the organization of the new academy "from below"—with the formation of the regional councils. This is very important.

The second level of organizational structures is the scientific councils attached to the general assembly of the Russian Academy. These are to some extent analogs of the specialized departments of the "large" academy. It is anticipated that there will be five of them: the social sciences (humanities), the physical and mathematical sciences, the engineering and technical sciences, the chemical and biological sciences, and the earth sciences. They will unite the founding members and members of the Academy of Sciences of Russia of the corresponding specialties. A third of the seats on the councils will be filled by doctors, who are elected from the regional scientific coordinating councils for a specific term.

The highest organ of the RSFSR Academy of Sciences is the General Assembly of its members, the Presidium carries out day-to-day supervision.

A fundamentally new thing here is the fact that, in addition to its members, other representatives of the scientific community are being enlisted in the work of the academy at all levels. They will participate in the settlement of all questions up to election to the academy. The first stage of the election will be conducted by the scientific councils for the sciences, and whoever does not get past this stage will not be further considered as a candidate for academy membership. Doctors of sciences will also participate in the work of the general assembly, but with a deliberative voice.

SOVETSKAYA ROSSIYA: But until the members of the academy are elected, how will this process begin, who will be in charge of it? For much, if not everything, will depend on how the composition of members of the Academy of Sciences of Russia is formed.

V. A. Koptyug: The question is a difficult one. In case of the establishment of a number of republic academies the first full members and corresponding members were simply appointed by the government of the republic. This means, of course, does not suit us. The members of the Academy of Sciences of Russia should be elected after extensive public discussion of their scientific services, their present creative activity, and their contribution to the solution of the problems of the Russian Federation. But, indeed, how is one to ensure the qualified evaluation of candidates in case of an election, when there are not yet members of the Academy of Sciences of Russia? In the discussed document it is recommended to invite a sufficiently large group of members of the USSR Academy of Sciences as founding members of the new academy.

It is proposed that they together with the doctors of sciences, who have been sent as delegates by the regions to the councils for sciences attached to the General Assembly, will draft on the basis of the general principles, which have been approved by the Presidium of the RSFSR Supreme Soviet and the RSFSR Council of Ministers, a temporary charter of the future academy and will take part in the first three election campaigns.

SOVETSKAYA ROSSIYA: Valentin Afanasyevich, it is possible to say that the concept of the establishment of the Russian Academy is quite clear. You have told for what and have explained how this will be done. Now there is a quite natural question—When? Has any specific date of the start of its work been stipulated?

V. A. Koptyug: The RSFSR Academy of Sciences should be established by the highest organ of the republic. I believe that in the immediate future the concept will be submitted for discussion to the Presidium of the RSFSR Supreme Soviet. After which a quite long road will still have to be covered. And it is necessary to begin it, as I have already said, in the regions.

SOVETSKAYA ROSSIYA: Was the exact name of the future academy specified in the document that was submitted by the working group?

V. A. Koptyug: No. But I will not conceal the fact that the name "the Russian Academy of Sciences" is more to the liking of the majority of us, although quite a large number of objections to it are being raised.

Need for Republic Academies of Sciences Questioned

907A0111A Moscow SOYUZ in Russian
No 3, 15-21 Jan 90 p 17

[Interview with Lenin Prize winner Academician Nikolay Sergeyevich Yenikolopov, by IZVESTIYA science commentator Boris Konovalov, under the rubric "The Debate Club": "Are the Academies of the Border Needed? A Conversation With Lenin Prize Winner Academician N. S. Yenikolopov"; date and place not given]

[Text] **SOYUZ:** Nikolay Sergeyevich, along with the USSR Academy of Sciences in each republic of ours (except the RSFSR) its own Academy of Sciences has been established. Has such a division justified itself?

N. S. Yenikolopov: Usually, when people want to talk about the benefit of the republic academies, they cite as an example the Ukrainian SSR Academy of Sciences, which actually is operating quite efficiently. It is also indisputable that during the years of the formation of Soviet power the republic academies played a large role in the formation of national staffs of scientists. And at that time some leniency toward their scientific level was justified. But more than 70 years now have passed since that time, while the "leniency," unfortunately, remains. The negative aspects in the life of the republic academies are now already visible.

In my opinion, the establishment of republic academies was in its day justified by the tasks of the study, preservation, and development of the national language, culture, and history. But with the years they began to expand drastically due to the natural sciences. The trend, when even very small union republics began to copy the structure of the all-union Academy of Sciences, gradually took shape. But inasmuch as, roughly speaking, the number of talented scientists per 100,000 people is approximately equal for any nationality, this had the result that people of little talent began to occupy "vacancies." An average candidate of sciences, who did not particularly distinguish himself by anything at a Moscow or Leningrad laboratory, having returned after the defense of his dissertation to his republic, often received an institute and immediately became a member of the republic academy. Whether or not we wanted this, nationality gradually became one of peculiar privileges in science. While as a result "second-rate science" formed at many republic academies.

I consider this an abnormal phenomenon. In my opinion, the formed situation requires extensive discussion and the taking of remedial steps. I personally believe that the division of Academies is not unjustified and their merging into a unified all-union Academy, membership in which would be determined by a single standard—the world level, is necessary.

SOYUZ: Today we are hearing from all corners that there are not enough assets for basic research, that the country is beginning to lag in this respect. At the same time approximately the same amount of assets is going to the republic Academies of Sciences as to the all-union one. While the simple fact that during the entire time of their existence not one of the members of the republic Academies has been awarded the Nobel Prize, testifies to their level. In spite of this, discussions are now under way on the strengthening of the republic academies in order to solve more successfully...regional problems. Does the task of the Academy of Sciences really lie in this?

N. S. Yenikolopov: As usual, the substitution of concepts is occurring here. The task of the Academy of Sciences is the revelation of the essence of natural phenomena and the obtaining of fundamentally new basic knowledge, on the basis of which a "train" of applied directions, which are of purely practical benefit for people, then originates. This research is called basic research because the entire edifice of human civilization is built on its results as the foundation. The regional problems of even a large republic are, as a rule, a subject of applied science. Here the task is not the obtaining of basic knowledge, but its practical use. The Academy of Sciences is a very small advance detachment which, using the language of soldiers, establishes the axes of penetration for the entire scientific front.

We actually do not have enough assets for basic research, and might never have enough, if we spend them so inefficiently. Even the mighty Soviet Union cannot be equally strong along the entire front of scientific research. We will not forget that we have only 300 million of the 5 billion inhabitants of earth. And as I have already said, the number of talented people for 100,000 inhabitants on the average is identical for any nation. So how can we have enough money, if each republic Academy wants to have all the same directions of research as the all-union Academy? Scientific equipment is now becoming more and more complex, efficient, but also expensive. The "spreading" of assets among all the Academies of Sciences is having the result that we are encouraging the second-rate research of poor scientists and are not giving our leaders an opportunity to develop efficiently at the world level. This is a double loss.

There is one solution here. Now this, it seems, is acknowledged by everyone—the changeover from the financing of the "signs" of scientific institutions to the system of grants—the financing of specific scientists and specific themes. The priorities in this case should be determined on a competitive basis. Such a system affords the possibility of rapid, efficient development for any talented scientist, wherever he works—in Tartu,

Samarkand, or Vladivostok. And at the same time it will automatically suppress second-rate science.

The most qualified specialists of the entire Soviet Union should be the experts who determine to whom to allocate grants in a specific scientific direction. This will eliminate the domination of Moscow scientists. The comparatively small outlays on the annual meetings of such specialists will be repaid a hundredfold.

If we have a unified Academy of Sciences, an end will be put to the flourishing of second-rate science. In this case the directions, which are actually specific for the republic, should be specially stimulated. For example, it is logically precisely in Turkmenia to foster an institute, which engages in basic research on deserts, and in Siberia one which deals with problems of the taiga.

SOYUZ: The question of establishing an Academy of Sciences in the RSFSR has now arisen. The expanded Presidium of the USSR Academy of Sciences supports this proposal provided that all its institutes, and the "lion's share" of them are in Russia, do not change their subordination. In your opinion, is the establishment of a Russian Academy of Sciences justified?

N. S. Yenikolopov: I believe that it is unwise to establish an Academy of Sciences in the RSFSR only because such academies now exist in Estonia or Turkmenia. It is probably wise not to aggravate the present unacceptable state of the republic academies, but, on the contrary, to seek a way out of the deadlock. And what is the Russian Academy without institutes of the union Academy? Is one to establish another detachment of "second-rate science"? Why? We now need the integration of basic science, not its disintegration. I repeat that it is more reasonable to eliminate the republic academies than to establish in Russia an Academy of Sciences in the image of the Kazakh or Armenian Academy of Sciences. People might not agree with me, but it seems to me that, having established another republic academy, we will weaken, not strengthen, basic research. Now, as never before, the concentration of assets is needed, and not their dispersal.

It is often said that now it is a matter not of the establishment of a new Russian Academy of Sciences, but the restoration of the Russian Academy of Sciences, which was organized by Peter I. It is appropriate to recall that this academy was a statewide one. We have such a one—it is the USSR Academy of Sciences, which always regarded and regards itself as the successor of the Russian Academy. Not that long ago we celebrated magnificently the 250th anniversary of our Academy of Sciences. And I personally (although I am an Armenian) always considered it the Russian Academy of Sciences. Simply for the sake of fairness it would be necessary to add that it is named after Peter I.

SOYUZ: The proposed Russian Academy of Sciences should be financed not from the all-union budget, but by the RSFSR Council of Ministers. Accordingly it should also become the "client" of research that is vitally important for the solution of the problems of Russia....

N. S. Yenikolopov: Once again the substitution of concepts is occurring. If it is necessary to solve vitally important problems of Russia, why is it necessary to establish precisely an Academy of Sciences in the RSFSR? Let us repeat once again that the task of the Academy of Sciences is basic research and the obtaining of fundamentally new knowledge. If it is necessary to solve regional problems, it is necessary to expand the network of scientific centers and to unite the scientific forces of the given territory. But the bulk of scientists work at sectorial institutes and higher educational institutions. The Academy of Sciences is only 60,000 of the 1.5 million scientific associates of the USSR.

In my opinion, today it is vitally important to establish integrated scientific centers in every republic and large region and to consolidate VUZ [higher educational institution] science, by offering guarantors to the talented scientists who work here. In case of the organization of a unified Academy of Sciences in the USSR a portion of the present associates of the republic Academies would be transferred to local universities and higher educational institutions. They would substantially raise the scientific level there. It is no secret that many universities of autonomous and union republics are former pedagogical higher educational institutions and have not gotten far from them in scientific level.

Of course, it is necessary to check carefully that humanities institutes, which it advisable to finance from local republic budgets, would not suffer in case of such reorganization. The problems of language, culture, and history have now become "hot points." And one of the motive forces of the organization of an Academy of Sciences in the RSFSR is the autonomous republics, which hope for their representation in the Russian Academy, and even the establishment of their own academies. And I can completely understand such large autonomous republics as Bashkiria or Tataria, if they were to take the position: why in the smallest union republics are there Academies of Sciences, but we do not have one, and were to cite the need to solve purely national problems.

From the editorial board: Academician N.S. Yenikolopov, a well-known scientist and the head of Soviet polymer chemistry, has expressed his point of view. Of course, there are also others. The problem is an urgent and topical one. The changeover of the republics to regional cost accounting is lending it particular urgency. We intend to continue the discussion on this theme and to make space in the newspaper available to those who ask to speak.

Scientist Elaborates on Perestroyka Shortcomings

907A0105A Moscow SOVETSKAYA ROSSIYA in Russian 12 Jan 90 p 2

[Article by Doctor of Chemical Sciences S. Kara-Murza under the rubric "The Position": "The Forecast for Yesterday"; first paragraph is SOVETSKAYA ROSSIYA introduction]

[Text] After five years of perestroyka we must examine calmly what has happened in the social organizational system of our science and in which direction it has evolved.

In my opinion, many important decisions in science for all their radical nature were imbued with utopian thinking and ignored the simplest questions and obvious forecasts. We have already created too many new problems in the course of perestroyka. Mistakes are inevitable, but they are justified only when all warnings are discussed publicly before the making of a decision and when a lack of information, and not the ignoring of it, is the cause of the mistake.

I propose to examine two important changes in the social organizational system of Soviet science, which have been implemented in recent years. The first is the changeover of all science to cost accounting and self-financing. The second is the change of the procedure of planning and financing scientific research and the changeover to a system of scientific and technical programs of different ranks. The intention of the organs, which made the decision, was obviously more progressive. And all the same both decisions evoke fundamental objections.

So on to cost accounting. The "brigade contract" is sent down to the level of the collective, which elaborates an individual research theme.

First of all by this we are drawing science much further into commodity-money relations than under capitalism. Contrary to widespread opinion, the bulk of applied science of the capitalist countries operates not on a cost accounting basis. The firm as a whole is the cost accounting unit, while its scientific center has a budget, which the firm allots it. Within this budget a choice of research programs and projects is made, moreover, only a few of these projects prove to be profitable. In the opinion of leading administrators of U.S. sectorial science, at a well-operating scientific center only 10-20 percent of the projects should be successful, but their success recovers with interest the expenditures on all research and development.

What does the changeover in our country of small scientific collectives to cost accounting and self-financing signify? It signifies that in case of failure the collective is regarded as a parasite of the organization—with all the ensuing moral and material consequences.

This will inevitably orient collectives toward the choice of themes which contain the minimum risk. In science the reserve of such ideas, which are useful for production, but are trivial, is enormous—they will also be developed. In five to 10 years the entire system of scientific and technical progress in the country will be destroyed contentwise. This will not happen only because among Soviet scientists and engineers there will be people who will perform creative work in spite of economic conditions, to the detriment of their own material well-being. It is now also difficult for these people, but the existing system is too weak to hinder them. When the system controls by the ruble, and not through the administration, but through the collective, it will become incomparably more difficult.

Another thesis of perestroyka in science states: Scientific institutions, for the jobs of which a client is not found, are eliminated. But in case of the total introduction of cost accounting not individual "poor" jobs, but entire types of research, which society obviously needs, will not be able to find a client. Among them first of all is a large portion of basic research.

It is no less important that under the conditions of the dictation of the interests of the client the deformation of the scale of values of science will inevitably occur—the orientation toward the objective truth will be suppressed. And already now interested departments, when ordering ecological studies, pose the task to prove the harmlessness of their activity. Budget-carried organizations to some extent can compete with them. What will happen in case of full cost accounting, when it is impossible not to have a client? For the public will not be able for a long time yet to finance science.

In the past two years the structurization of science into what are called "priority directions," which has been proposed for a long time, with the formulation in each direction of a "scientific and technical program" has been accomplished to a significant extent.

At the USSR Academy of Sciences these changes were regulated by a large number of orders and instructions. In our country it is not customary to publish such documents. But inasmuch as they exist at every institute and one has to take them as a guide in everyday work, they do not constitute any secret.

The Presidium of the USSR Academy of Sciences approved a list made up of approximately 140 programs (the most important directions of the development of science and technology in the USSR), each of which has its own supervisor. Now 140 people are acquiring the unprecedented powers to decide the fate of approximately 10,000 actually formed directions of basic science and those directions, which are just emerging. Previously the bureaucratic system did not dream of attaining such a degree of monopolization!

What does the inclusion of his theme in a "program" mean for a scientist? Let us look at a simple, though hackneyed example. Corresponding Member of the USSR Academy of Sciences G.V. Voropayev was approved as supervisor of the program "The Development of the Theory and Methods of the Management of the Regime and Resources of Waters of Dry Land." His concept is well known, he repeatedly and quite specifically reported that he had not changed his views on the problem of the use of water resources (including the diversion of rivers). It is well known that various points of view existed among the scientists concerned with the problem of the diversion of rivers. The department was able to ignore the alternative concepts, but could not

prevent their appearance. Now it is a completely different matter. Now all studies of the water resources of the country are subordinate to G.V. Voropayev. Now, wherever you work, you can obtain assets either from him or by his letter, but then he will determine the quality of your work....

The instructions are striking for demonstrative nonconformity to all the presently declared principles of glasnost and democratization. For example, "state programs are planned by the Presidium of the USSR Academy of Sciences." Experience shows that the Presidium of the USSR Academy of Sciences cannot, of course, plan programs. It approves what has been proposed by the 140 scientific leaders. But how, in such a case, did the list of programs and the list of their supervisors originate?

Suppose that a most narrow group of scientists, which was formed by no one knows whom, was able to choose correctly the truly key problems of modern science, on which it is necessary to concentrate forces. However, I believe, there was no discussion in scientific groups precisely because the compiled list is a product of extreme voluntarism and an orientation toward present practical tasks. And even in case of this orientation there are gaps that are hard to explain (for example, soil science is completely absent, although the deterioration of soils has become a most important global problem, which is especially urgent for our country).

In general all this could become a fine textbook on the study of how departments are using perestroyka for quick and irreversible bureaucratization of a new type—bureaucratization with the use of economic levers.

Incidentally, "programming" affected not only basic science. The USSR State Committee for Science and Technology followed the example of the academy.

It is possible to illustrate the typical features of the scientific and technical programs, which have been formulated by departments, with "the program of the century" of the Ministry of Railways—the construction of the Leningrad-Moscow-Crimea-Caucasus high-speed railway line. It is noteworthy that already in June more than 50 enterprises and organizations and 17 ministries and departments had been enlisted in the performance of design and scientific research work on this program, while the economic substantiation should be completed before the end of the year.

The program is being promoted in the press under the optimist slogan "The Ultra High-Speed Will Rush to the South" and no one is asking: But what if only approximately is the cost of this pleasure? In the FRG, where such work has been performed for 15 years now, a kilometer of track cost nearly $20 million. The French have prospered more. They have already built the Paris-Lyon railroad and have gained experience. It is considered established that a kilometer of such a railroad cannot cost more than $3.5 million. How much might the 2,500-kilometer railroad cost us? If we talk in terms of dollars, not less than $50 billion. It is hard to say in terms of rubles. But this is if we work as they do in the FRG. But in reality? But in reality this is the same diversion of northern rivers, but as applied to railroads. Moreover, let us recall that in our country even simply the ER-200 high-speed train on the Leningrad-Moscow railroad for many years has not been able to enter normal operating conditions....

Inasmuch as the USSR Academy of Sciences by tradition is considered "the headquarters of Soviet science," its official stamp is always required on documents which formulate scientific and technical policy. Moreover, the choice and substantiation of priorities in scientific activity in our country are made on the basis of the Comprehensive Program of Scientific and Technical Progress of the USSR for 1991-2010. In reality the principles and conclusions of this program, which pertain to science, simply were not taken into account when drawing up the scientific and technical programs. And how seriously they treated the opinion of specialists of the USSR Academy of Sciences is evident from the resolutions and the dates on the cover letter, with which these documents arrived at institutes of the USSR Academy of Sciences. Here it is:

21 January 1988. Former chairman of the State Committee for Science and Technology B.L. Tolstykh sends the draft of the document to President of the USSR Academy of Sciences Academician G.I. Marchuk with the request to report in a month the views and specific proposals.

4 February 1988. The document is transmitted to the Scientific Organizational Department of the USSR Academy of Sciences with the request "to organize examination by the departments and to summarize their proposals by 15 February 1988."

9 February 1988. The materials are transmitted for consideration to the departments of the USSR Academy of Sciences with the request to give responses for generalization by 15 February 1988.

11-12 February 1988. The materials arrive at the institutes.

Thus, the most important materials, in which it is proposed to lay the foundations of scientific and technical policy of the country for 20 years, are given to specialists for examination on Saturday and Sunday.

Leading Scientific Officials Discuss Most Pressing Issues

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[Report by M. Panova on meeting of the Commission of the CPSU Central Committee for Questions of Socioeconomic Policy under the rubric "Scientific and Technical Progress: Points of Growth": "The Choice of Priorities. Notes From the Meeting of the Commission of the

CPSU Central Committee for Questions of Socioeconomic Policy"; last in a series of four installments; first paragraph is EKONOMICHESKAYA GAZETA introduction]

[Text] How is one to overcome in the shortest time the technical lag of our enterprises behind the best foreign firms? In order to ensure a breakthrough in the priority directions of scientific and technical progress what is necessary? How is one to raise the prestige of engineering labor and to attract the most talented scientists to scientific and technical research? Concluding the publication of the notes from the meeting of the Commission of the CPSU Central Committee for Questions of Socioeconomic Policy (EKONOMICHESKAYA GAZETA, Nos 41-43), the editorial board sets forth the point of view of the conference participants on these questions. And what do our readers think?

For What Are Exhibitions Needed?

It is also necessary to examine the questions of scientific and technical progress and the development of science from the point of view of the situation that has formed in the country. Chairman of the Moscow City Soviet Executive Committee V. Saykin spoke about this in his statement at the meeting. In Moscow, for example, he noted, in industry the turnover of manpower comes to 10 percent. Under these conditions the solution of the problems of the quality and competitive ability of items is becoming complicated. Plants and scientific institutions are still not interested in the development and use of new equipment. Let us take, for example, the nature of the scientific and technical exhibitions, which are being held in our country. Their goal is by no means to sell new equipment, but merely to show its models. Often no one clearly knows in what year they will be produced, and their quality is frequently low. The separation of basic science from applied science also has an effect. Here the example of the solution of urban ecological problems is characteristic. In Moscow 75 institutes are dealing with them to one extent or another. But when at one of the conferences of representatives of 15 of these institutes they asked for an answer as to what they can do for the reduction of the harmful emissions of motor transport and heat and electric power plants, the main polluters of the air of Moscow, they could not say anything specific. The Moscow City Soviet has the necessary assets to pay for the design work and the production of industrial prototypes, but no one has assumed responsibility for the accomplishment of this task. Again we have to turn to western firms.

It would be possible to change much by setting up scientific production associations, at which questions of the use of scientific developments are settled more quickly. Thus, if the Moscow Motor Vehicle Works imeni Likhachev were to be made a scientific production association, as has already been suggested, many developments would not sit a long time on shelves gathering dust.

Much is being said about the priorities of the development of the national economy. But how are we to support these priorities, when in individual directions we have fallen about 10-15 years behind? Is it necessary to attempt under these conditions to invent everything for ourselves? For example, in the area of computer technology, where we are trying all the time to catch up. It is difficult to ensure the priority development of machine building without powerful, mobile, general-purpose machine tool building. To expect that conversion will help out is to imagine in a simplified manner the accomplishment of the tasks arising here. Today in the West precisely civilian firms are filling military orders in an excellent manner. This is possible because they have flexible technology, while our specialized enterprises are not ensuring the necessary mobility of production. It is necessary to specify carefully the priority development of works in individual sectors of industry as well. For example, in the same machine tool building it is necessary to direct attention to the development of advanced hydraulic systems, advanced pneumatics, and control systems.

For the technical reequipment of the national economy it is necessary to develop powerful machine tool building, which is capable of producing advanced equipment. Thus, today we are purchasing whole abroad factories for the production of shoes. But in order to reequip all light industry, it is necessary to purchase "turnkey" machine tool building plants. Perhaps, it is necessary to reduce the spending on science and to buy the needed licenses. Because we are inventing what has already been invented.

One must also not give priorities in science only to new directions. There are themes, which have been conducted for decades, have become covered, in essence, with dust and mildew, but have not been accomplished. Is it perhaps necessary to revise the structure of scientific institutions, to shut ineffective ones, and to open new, viable institutes? If the expansion of the network of scientific institutions is required without end, the economy will not hold out.

Forecast, Plan, Stimuli

Deputy Chairman of the USSR Council of Ministers and Chairman of the USSR State Committee for Science and Technology N. Laverov dwelt in his statement on questions of the state management of scientific and technical progress. The solution of the problems of perestroyka and urgent social and economic problems and the increase of the standard of living of the people, N. Laverov noted, to a significant extent are connected with the acceleration of scientific and technical progress.

Definite changes have been achieved here, but for the present radical changes are not occurring in the production of science-intensive products.

The basic reason is that the economic mechanism remains imperfect. As before, production is not receptive to the results of scientific and technical progress,

stimuli, which would intensify the labor of scientific personnel, are lacking. And although the increase of the wage in case of the changeover of science to cost accounting was large, the increase of effectiveness proved to be negligible.

Many shortcomings have accumulated in the methods of the formulation and pursuit of a unified state scientific and technical policy. We are still just talking about the legal support of scientific and technical progress, but rather little has been done here.

The management of scientific and technical progress, and this has already been noted at the meeting of the commission, cannot be examined outside the united integral system of the management of the national economy. Within the framework of the overall changeover to the new system of management of the economy, which is oriented toward specific social goals, more attention should be devoted to the problems of scientific and technical progress. But in the documents, which were adopted as the legal base of reform, there are only individual elements of the legal basis of the management of scientific and technical progress.

It is expedient to prepare a special law on scientific and technical progress and the development of science with the statement of all the aspects of management, which should exist in a law-governed state. In the United States and Japan there is, for example, a code of laws on product quality and standardization.

A new concept of the acceleration of scientific and technical progress is also needed. A fundamental feature of this concept is the transition from the rigid state planning and state management of science to a state-public mechanism. It is a matter of the enlistment in this work of a large group of public organizations and new legislative organs and the careful consideration in the USSR Supreme Soviet, for example, of the directions of the spending of budget assets and the methods of stimulation.

The need is arising for the radical transformation of the mechanism of the management of scientific and technical progress on the basis of the concentration of state resources on priority directions. Both world and our experience show that the correct choice of priorities plays a large role in the solution of major problems. Thus, our atomic industry and space research were developed within the framework of state priorities. While at present the social orientation of scientific and technical progress is becoming a priority orientation. The priorities in scientific and technical progress should be oriented toward man.

Personnel of the State Committee for Science and Technology, the Academy of Sciences, and economic and other organs of the management of the national economy are participating in the formulation of the concept of the restructuring of the management of scientific and technical progress. In it the evaluation of the achieved level and the main tasks of scientific and technical progress to 2005 are singled out, the necessity of interaction with the scientific and technical community and legislative organs is stressed, and the legal bases and regional problems of management are set forth. A unified policy with regard to the implementation of this concept also has to be formulated.

The core of the concept, in the opinion of N. Laverov, is the improvement of the formulation of state scientific and technical policy on the basis of priorities. Several priorities have already been specified—these are 14 state scientific and technical programs, which have been approved by the government. Among the priorities are the Comprehensive Program of Scientific and Technical Progress of the CEMA Member Countries and the development of interbranch scientific technical complexes. The distribution of financial resources for these priority directions is now assuming particular importance.

When formulating the draft of the 1990 plan it was possible to ensure the concentration of allocations on them. In all 755 million rubles are being allocated for these purposes as against the 433 million rubles that were allocated last year. The 74-percent increase is being provided by the reduction by eight to 10 percent of the assets for ministries and departments, which now for the most part are financing work from the centralized funds that they have, as well as the internal assets of enterprises.

The leading development of science-intensive sectors, such as machine building, electronics, and instrument making, was incorporated in the draft of the 1990 plan. For example, 40 percent more assets than before were allocated for the production of personal computers. For the development of integrated workstations—30 percent more, technological lasers—60 percent more. The amounts of assets for the program on social issues are being increased by 46 percent, the allocations for resource conservation increased by 10-12 percent.

The state assignments for 1990 on science and technology, and there are 350 of them, are also better supplied with material and technical resources. The number of assignments on the conducting of scientific research and experimental design work in priority directions were increased sharply—there are 166 of them as against 43 in 1989. It is planned to allocate in 1990 for the development of pilot experimental bases 1.65 billion rubles as against 960 million rubles in 1989.

If we talk about the other positive changes in the restructuring of the economic mechanism of the management of scientific and technical progress, it is necessary to note that a market of scientific and technical products appeared for the first time. Thus, several suggestions were advanced when working on the problems of electronization and the development of new seismic stations and computers.

Tax methods of the regulation of the wage should halt its groundless increase. An experiment on a tax system of the regulation of the remuneration of labor is being

conducted at 80 institutes. The income of personnel should increase only in conformity with the achieved results.

It was decided, N. Laverov noted, to establish an innovation, so-called antimonopoly fund, which will make it possible to support individual original researchers and inventors and to develop new small subdivisions at institutes.

It is also necessary to broaden the rights of the republics so that they could establish themselves the necessary scientific subdivisions. A rigid network of institutes and design bureaus gives rise to monopolism and stagnation. It is necessary to combat those of them, which are working inefficiently, mainly by economic methods, without excluding administrative decisions.

The Talent of an Organizer

USSR Minister of the Electronics Industry V. Kolesnikov spoke about the problems of improving the organization of scientific and technical work. At the meeting, he noted, many speakers had emphasized the need to value the talent of a scientist and engineer. Why did they forget the talent of a production organizer, on whom very much depends when introducing scientific and technical achievements? Here, after all, it is necessary to know what to do and to know how to do it. Knowledge about how to do something is also a commodity on the market and an extremely expensive one.

A triumvirate, so to speak—the scientist, the process engineer, and the production organizer—determines the process of introduction. It is even believed that the talent of a scientist is encountered tenfold more often than that talent of a production organizer. It is possible, consequently, to find a scientist more quickly than such a person, who would be able to introduce in series production what has already been developed. Practical experience shows that we know how to make models of a new thing, but as soon as we get to the organization of mass production, the matter comes to a standstill. Here the main, but for the present still the weak link is technology. Low technological standards are the basic shortcoming of the organization of production. The director of an enterprise should himself be an organizer of production and know it thoroughly. Under the conditions of the electivity of the manager not the professional qualities of a person, but his promises to immediately improve working conditions and to provide apartments at times decide the choice. A demanding director does not suit everyone, the collective might follow those who will appeal for his replacement. Such a situation is intolerable.

It is necessary to settle the questions of the strengthening of the contact of basic science and applied development, V. Kolesnikov believes, not only within the framework of scientific production associations. Large scientific centers, which are furnished with a powerful experimental base, are also needed. Such a center for microelectronics is being established in Kryukovo near Moscow.

...And Regional Structures

In his statement First Secretary of the Kabardino-Balkar Oblast Committee of the CPSU Ye. Yeliseyev examined the territorial aspects of the improvement of the management of scientific and technical progress. He stressed that locally organizational structures of the management of scientific and technical progress in practice had not been established. And the enormous gap in the time between the development and introduction of scientific and technical achievements to no small degree is due to the poor monitoring of this work locally—in the republics, oblasts, and krays.

Now these questions are assuming particular importance in connection with the preparation for regional cost accounting. Especially as under the conditions of the increasing independence of enterprises ministries and departments are losing their former influence on questions of the introduction of scientific and technical progress, while new mechanisms of regulation have not yet been developed. It is not surprising that the council of the labor collective, while discussing what to do—to install new machine tools and new technological lines or to build two houses and a small kindergarten—decides: the old machine tools will work another two to three years, it is better today to build housing. How is one to coordinate and regulate questions of the technical improvement of production in a region? A regional comprehensive program on questions of scientific and technical progress was drafted by the efforts of scientists jointly with ministries and departments, they decided to monitor its fulfillment through the primary party organizations. However, this does not always turn out well, especially when it is a question of major technical and technological questions, which require much time and large expenditures. In these cases they frequently opt not for such outlays which promise a return, say, at the end of the five-year plan.

Another example. They established a republic association for the production of consumer goods and attempted to combine resources for the output of urgently needed goods. But again difficulties arose. For money is needed, material and technical resources are needed, while it is possible to obtain them through labor collectives. Under the conditions of cost accounting relations the force of persuasion and proof of the necessity of settling these questions is not always enough. Therefore, in the concept of the improvement of management structures on the union scale it is necessary to provide for some structures of the management of scientific and technical progress locally.

There Is No Other Choice

Organizational, administrative methods, of course, should give way more and more to economic methods.

As Academician L. Abalkin, deputy chairman of the USSR Council of Ministers, stressed, we have embarked on radical economic reform and we do not have and will not have another means. We are coming under fundamentally new conditions of the development of science, its financing and planning, and the use of the obtained results.

When drafting the State Budget for 1990, in spite of the drastic steps on the reduction of spending for the purpose of eliminating its deficit, an increase of the allocations to science was incorporated. But in the future it is still necessary to reduce the budget allocations for these purposes, it is necessary to obtain assets for science in different ways. Chairman of the Moscow City Soviet Executive Committee V. Saykin spoke about one of them in his statement at the meeting. The Moscow City Soviet Executive Committee has received budget assets for the ecology program and will now be able to finance the institutes which are participating in it. A second means is specified by the amendments to the Law on the Enterprise, which have already been passed by the USSR Supreme Soviet—every enterprise, association, and interbranch complex, including the scientific technical complex, has the right to issue bonds. And whoever wants to attract money for the implementation of his own projects can do this—can float a loan for 1 million, 2 million, or, say, 3 million rubles. It is necessary to learn to work under the conditions of the forming commodity market, financial market, and market of scientific and technical products. It is possible to attract money on such a basis, apparently, with the condition that whoever purchased the bonds and invested money in the development of science will receive in a priority manner either scientific and technical developments or a percentage of the achieved economic impact.

Basic science should for the most part be financed from the state budget, inasmuch as such outlays involve an enormous risk and do not have guarantees of the obtaining of results, it is possible to spend millions of rubles and to come to the conclusion that a dead-end was chosen. Apparently, deductions for exploratory research should also be envisaged in every research program.

The economic situation in the country required the adoption of a program of emergency steps on the improvement of the financial health of the national economy. As before, we cannot develop, which also applies to the management of scientific and technical progress, the main influence of the state on its acceleration is the improvement of the financial health of the economy. Now everything depends not only on what kind of structures, plan indicators, and scientific and technical goal programs we devise. All this is very important, but the main thing is to create a conducive economic environment for the activity of scientific and production collectives, which stimulates the conducting and use of scientific and technical developments. Under the conditions of an unbalanced economy with surplus money, the monopoly of producers, and the opportunity to inflate prices without any progress and improvement of product quality and without resource conservation the impact from spending on science will be zero.

Of course, the improvement of financial health is impossible by means of or apart from science. Science is the main sphere of the improvement of the health of the entire economy and first of all by economic methods. From this standpoint one must not regard taxes only as a factor which restricts initiative. Let us take, for example, the taxation of the increase of the wage fund. Contrary to the widespread incorrect idea this system makes it possible to remunerate as highly as one likes the labor of a worker on the condition of the reduction of the staff, which leads to a saving of the wage fund. If at an institute, say, not 500, but 400 people, not 1,000, but 800 people will be employed, it is possible to obtain a wage increase which is not taxed. The same person, who aspires to receive a wage fund in excess of its three-percent increase, should earn both for himself and for the state and participate in the financing of its programs. Just one exception has been made, one priority has been distinguished—consumer goods and services. Scientific and technical progress is affording an opportunity to save on the fund for the remuneration of labor in case of the increase of production.

It is being actively proposed to manage scientific and technical progress on the basis of state orders. Indeed, the state order remains one of the most important regulators of both the development of science itself and the placement into operation of the capacities of the most important facilities. Finally, it is possible to manage these processes through demands on the quality of products and their assortment. Moreover, a set of steps, which are connected with financial and economic methods—prices, the tax system, profit taxes with a set of sanctions and breaks—remains. The advantage of tax methods of regulation is the fact that they are free of subjectivism and create as much as possible equally intense demands on the part of the state on the use of resources and on the economic impact. Only a common tax scale, which is supplemented by a set of breaks and sanctions, provides this. It is possible, for example, to establish tax breaks on that portion of the income or profit, which is allocated for the formation of the production and technical base of an enterprise, and to create preferential conditions for it. The exemption from taxes of products for production engineering purposes, which conform to high indicators and the level of world achievements and exceed it, is also necessary. Of course, the criteria for breaks and different kinds of sanctions should be developed.

The priorities in credit policy, in the opinion of L. Abalkin, should be just as clear. The tightening up of the policy of the regulation of all credit processes and the differentiation of interest rates, in order to stimulate scientific and technical progress, are important both for the curbing of the budget deficit and for the concentration of resources on the most important directions of the development of science and technology.

The discussion showed, L. Abalkin stressed, that only large structural formations—interbranch scientific technical complexes and scientific production associations—were at the center of attention of the speakers. But world experience proves that scientific and technical progress is impossible without an enormous number of small enterprises, which are flexible and mobile, have a high degree of risk, and are capable of rapid readjustment. Programs of the financing of science will be successful only in case of such an organizational structure of science and production, which has sufficient flexibility, adaptability to what is new, and the willingness to assimilate it, which small enterprises ensure. The preparation of steps in this direction in combination with steps on the demonopolization of production structures in order to afford prospects of the development of small enterprises in the most different spheres—in consumer goods production, in machine building, and so on—is now under way.

And what is the role of cooperatives in this? By their actual appearance they made it incumbent to reconsider and reinterpret much and created competition for state enterprises. The creation of equal conditions for state and cooperative enterprises is necessary.

What Can Standards Do?

In the management of scientific and technical progress questions of standardization and product quality control play not the last role. Chairman of the USSR State Committee for Standards V. Sychev noted that the existing models and mechanisms of standardization and quality control are, in essence, an obstacle to scientific and technical progress. Thus, the prevailing model of standardization paralyzes both the developer and the producer, they simply give up in face of the mountain of mandatory standards. Therefore, it is necessary to examine thoroughly the necessity of some standards or others. It is necessary to involve in their elaboration first of all the people, who manufacture the product and will use the standards.

By the end of this year the State Committee for Standards intends to develop a new model of standardization and to discuss it with the scientific and technical community and, during the first quarter of 1990, to approve it at the government level. In order to imagine the difficulties arising here, suffice it to mention that the standard technical collection, which numbers 20,000 standards, will have to be "dug up."

Difficult questions, which are connected with the direct use of international standards, have to be settled. CEMA standards, as is known, are now being used on the basis of the principles of unanimity, which is having the result that their scientific and technical level is low. The attempts to use international standards reveal that industry is not ready for them.

Product quality control also needs reinterpretation. The procedure of certification for the state Quality Emblem and for the categories of quality in many respects has been devalued. State acceptance has not completely justified itself. Quality control is traditionally based on "three whales"—these are the certification of production, product certification, and the introduction of standards of the system of product quality control. While striving to develop our own, home-grown mechanism of quality control, which today is in many respects not justified, we were late with the solution of many vital problems. Now we have to make up for lost time.

The work experience of one of our few certification centers, which was developed on the basis of the Scientific Research Institute of Explosion-Proof Power Equipment, was recently examined in the collegium. And although it has been operating for several years now, only two certificates of quality have been issued. Why? Industry is simply not ready for certification, besides, it has itself not yet won trust and has not demonstrated its competence. The basis of certification is the testing center. And the foremost task is to enlist in this work the testing centers of ministries of the defense sectors of industry. Only after developing in the country a network of testing centers will we will the struggle for quality.

The Law on Product Quality and the Protection of the Rights of Consumers, which is now being prepared, is also called upon to play an important role in the mechanism of the management of scientific and technical progress and product quality control.

Sources of the Shortage

How is one under the conditions of the shortage to improve the material and technical supply of the sectors of the national economy and to find the resources for the priority directions of scientific and technical progress? A. Melnikov, first secretary of the Kemerovo Oblast Party Committee, dwelt in his statement on these questions.

The habit of solving problems first of all by further increasing the production of machines, equipment, metal, and electric power leads to the further weighting of the economy. Because of this the production of consumer goods suffers, there is not a sufficient amount of power for the population. We are not succeeding in putting an end to the shortage of metal and electric power, in spite of scientific and technical progress in their production. Therefore, it is possible to find resources by having put an end to the practice of developing production for the sake of production, having shifted these production capacities, raw materials, and wage funds to the output of truly necessary, scarce items.

Democracy in Science

Concluding the meeting, Member of the Politburo and Secretary of the CPSU Central Committee N. Slyunkov noted in the closing address that the held discussion will help to find constructive solutions of the problems of scientific and technical development. An objective evaluation of the state of affairs in the area of science, technology, and the use of scientific and technical

achievements was given. During perestroyka the questions of economic growth and the attainment of a new level of socioeconomic development can be settled only on the basis of scientific and technical progress and economic reform. But for this everything should be done for the acceleration of scientific and technical progress and the increase of the receptivity of the national economy to its achievements. If such an economic mechanism is not developed, stagnation and even regression are inevitable.

The lack of receptivity of the national economy to scientific and technical innovations, which has existed for very many years, the disproportions, which have been allowed in structural and investment policy, as well as the oversights in the development of the material base of science also led to barriers not only between science and production, but also between the academic, VUZ [higher educational institution], and sectorial sectors of science. The high level of specific basic research and applied development in the interests of defense does not change the overall picture.

The organizational structure of science has come into conflict both with the needs of its development and with the specific nature of scientific activity itself. Moreover, a system of the choice of priority directions of research has not been formed. Monopolism with its characteristic consequences of stagnation, the suppression of what is new, and the domination of bureaucratic structures prevails.

The formed economic management mechanism has given scientific administrative personnel excessive opportunities in the disposal of resources and the determination of the themes of research. Planning and the formation of scientific structures have begun in many respects to conform to the interests of individual scientists, who are involved in management, or groups of scientists. A certain conservatism of the themes and network of scientific laboratories has formed. It is also possible to speak about the fact that personnel st agnation is being observed.

Resolute steps on the elimination of the disproportions in the development of the scientific and technical potential of the country and the obstacles to the rapid entering of the technological phase of the modern scientific and technical revolution, N. Slyunkov stressed, are necessary. It is necessary in practice to accomplish what has already been done in the developed capitalist countries over the last 15 years, that in which we have fallen behind. The strategy of perestroyka, which has been developed by the party, has a direct bearing on science an l the extensive introduction of its results in the interests of the socioeconomic reorganization of society.

The Competition of Ideas and Investors

Many scientists correctly believe that a fundamentally new organization of the scientific potential of the country and the democratization of science, which will make it possible to eliminate the monopolism of the scientific truth and to firmly establish a system of the competitive financing of research projects, are needed.

We need a multiple-component structure of financial sources for the development of the competitive basis of the organization of scientific research. The competition of ideas and the competition of investors will help to achieve real and quite rapid changes in the effectiveness of science, to develop alternative organizational structures with high technical equipment, and to dispose of monopolism.

The structure of the network of scientific organizations should acquire mobility. But one must not strive for common organizational forms. Not the institute, as is now customary, but the creative collective, which works under contract on a specific problem, should become the basic unit in science.

Research collectives and the orders, which are submitted by them, should become the basic objects of financing. Here there should also not be a fixed pattern, a flexible system is needed: state and public funds, credits of banks, assets of philanthropic societies.

The independent examination of scientific programs and projects should become an integral element of scientific activity.

The Levers of Priorities...

The modernization of the material base of science, N. Slyunkov stressed, remains a fundamental task of the acceleration of scientific and technical progress. The level and quality of developments and the labor productivity of scientists depend on this. The time has come to make a principled decision on the intolerability of the maintenance of laboratories, at which there is no possibility to concentrate the necessary technical resources which are sufficient for efficient activity. Therefore, the need has arisen for the making of an inventory of the research being conducted in the country and for the evaluation of its state in each scientific direction and of the laboratory base. The collectives, which are far from the front line of science, have lost contact with world research, and have, in essence, turned their scientific center into a storage of frozen resources, should not have the right to exist. It is necessary to transfer the wage fund, the material resources, and the premises to those who will be able to use them efficiently.

Relying on the existing experience of Siberia, the Ukraine, Belorussia, and other regions, it is expedient to consider the possibility of establishing the most integrated scientific educational associations, in which both universities and organizations of the Academy of Sciences take part.

The meeting participants, N. Slyunkov noted, spoke correctly about the shortcomings in the organization of forecasting. The state of affairs in this section is absolutely unsatisfactory. Forecasts have not acquired a real role in planning and management activity, have often

remained scientific decoration, and have been used for the backing of strong-willed decisions. The main difficulties, with which sectors and regions are confronted in case of forecasting, are connected with the lack of a unified methodology of long-term forecasting and a system of unified national economic information supply. The USSR State Committee for Science and Technology has already prepared proposals on the improvement of the organization of forecasting, it is necessary to discuss them with the USSR Academy of Sciences and to reduce them to practical decisions.

The questions of the planning of science and technology are urgent. The indicators of scientific and technical progress and its end national economic result should become the basis of the plan. Here it is necessary to reject the rigid directive nature of our plans. The freedom to maneuver when choosing specific organizational and technical solutions should be ensured, the possibility of the display of initiative by collectives and enterprises should be envisaged.

As before, designing continues to remain one of the factors which are seriously checking the acceleration of scientific progress. Only 1 in 10 projects, which are being implemented in the investment sphere, corresponds to the world level, construction itself is dragged out for six to seven years and more. With allowance made for the significant separation of designing from scientific research a lag behind world achievements of nine to 15 years is resulting. In designs, as checks of Promstroybank of 180 projects with the start of construction in 1989-1990 showed, only one of every six developments of science is being used, an increase of labor productivity by 1.5- to 2-fold is envisaged in only one in 10 designs. The thorough examination of designs is needed, but in the USSR State Construction Committee they have reduced the expert service to one-third. The USSR State Committee for Science and Technology has in practice abandoned this work. The independent expert subdivisions in ministries and departments for the most part have been eliminated, their functions have been transferred to subdivisions which are in charge of questions of designing and capital construction. And therefore, it is not by chance that resource-intensive solutions, which are ruinous for the country, have been incorporated in many designs. The imperfections of the projects on the assurance of favorable ecological conditions have assumed particular urgency. All this is leading to the conclusion of the need for the fundamental restructuring of planning estimate work, which would encompass measures on the improvement of management and planning in this sphere and on the linking of its economic mechanism with the ends results of the implementation of designs in production.

It would be advisable to establish in the USSR State Committee for Science and Technology a main expert commission for technological solutions in designs and in the USSR State Construction Committee one for spatial layout and design solutions of the construction section and to establish legislatively that no construction project should be financed without a positive conclusion of expert organs. A data bank on the highest world and domestic scientific and technical achievements, technologies, design solutions, basic parameters, and the time of the production of technological equipment should be established to aid experts and designers.

At the all-union level state scientific and technical programs with an indication of the basic goals and the final dates of their achievement and the major stages of implementation should become the basic tool of the accomplishment of the priority directions in science and technology.

At present 14 state programs, which are making it possible to concentrate efforts on the most important directions of scientific and technical progress, have been specified. In all 18 programs of basic research have been formulated at the Academy of Sciences. Such an approach should help to a significant extent to break the monopolism of individual groups of developers, to identify the most talented scientists and original proposals, and to increase the efficiency of scientific labor. The main thing now is to formulate each program on the basis of the designs, which won the competition, and to ensure in practice the priority allocation of financial and material resources.

...And Stimuli

In the set of steps in question the improvement of the forms of the organization of scientific research and experimental design work merits increased attention. Jointly with central economic departments and sectorial ministries the USSR State Committee for Science and Technology must, N. Slyunkov stressed, take the most vigorous steps on the development and spread of small forms of scientific and technical activity. These are engineering and introducing centers and intermediary firms.

Research and development, as experience shows, are performed two- to threefold more rapidly, with significantly fewer forces, and with one-fourth to one-third the cost by small organizational forms than by large institutes. At the same time it is necessary to develop wherever necessary large scientific centers and interbranch associations and complexes. The meeting participants expressed many suggestions on their further improvement and the increase of independence and responsibility. In the organization of scientific and technical activity the lease contract should also be used more extensively.

Standardization also has enormous possibilities in the increase of the technical level of products. First, standards make it possible to establish the most advanced demands on the base parameters of products and settle the questions of the standardization of the base designs of units and assemblies. Second, by the interconnection of the standards for the final product with the standards for raw materials, materials, and equipment it is possible to pursue most effectively a unified technical policy and an active policy with regard to the saving and efficient use of all types of resources. And finally, third, standards

make it possible to form the conditions for the introduction of advanced standard technological processes. It is necessary, therefore, to complete without fail during this five-year plan the revision of standards and specifications and to bring them in line with world achievements and international standards.

At the same time the main role in the acceleration of scientific and technical progress belongs to economic levers. First of all a tax system, which would advance both the economy and scientific and technical progress, is needed. And until this has been done, scientific and technical progress will hardly make headway. There should be hundreds of approaches here: the preferential taxation of the profit, which is derived during the first 2-3 years from the use of innovations; tax breaks for enterprises and organizations, which are actively performing scientific research and experimental design work. In particular, in a number of cases their complete or partial exemption from the payment of taxes for some period of time is possible. Tax credits for investments in equipment and advanced technologies and for the purposes of modernization and retooling and preferences with respect to the deduction for the fund of enterprises of foreign currency receipts from the export of items would help to increase the technical level of production. A diversity of tax approaches is necessary in order to avoid the fixed patterns that are typical of the administrative command system.

A stimulating tax policy also assumes the corresponding financial and credit system, as well as efficient pricing. There should be a price policy with respect to new products and to items being removed from production.

The conversion in defense sectors should also concern scientific activity. In case of the overall reduction of some sectors or others of defense production one should not, however, reduce the spending on science and transfer to other spheres of activity the scientific collectives that are employed in them. It is better to retain them and to reorient them toward civilian goals.

The main conclusion from the examination of the question consists in the fact, N. Slyunkov stressed, that now efforts should be aimed at the development of a specific concept of the management of scientific and technical progress in the country in direct connection with the economic mechanism, so that the national economy would accept scientific and technical progress.

As a result we will have a serious foundation, which will help to form the platform of the CPSU on questions of scientific and technical progress when preparing for the 28th party congress.

Science Official Explains MNTK Failures

907A0104A Moscow PRAVITELSTVENNYY VESTNIK in Russian No 24, Nov 89 p 5

[Interview with Boris Dmitriyevich Motorygin, chief of the Department of the Improvement of the Economic Mechanism (the Consolidated Complex of Scientific and Technical Progress) of the USSR State Committee for Science and Technology, by a PRAVITELSTVENNYY VESTNIK correspondent: "Toward Progress Without Stresses. Why Interbranch Scientific Technical Complexes Did Not Justify the Hopes"; date and place not given; first two paragraphs are PRAVITELSTVENNYY VESTNIK introduction]

[Text] For nearly four years now—from the very start of the establishment of interbranch scientific technical complexes—the press has been closely following their activity. Opinions are different, while the evaluations of the same facts at times are diametrically opposed. One specialist, for example, notes with pride that 22 percent of the developments of interbranch scientific technical complexes, which have been introduced in production, correspond to the world level or do not have analogs at all. What, it would seem, could be better—after all, the complexes were established in order to give a vigorous boost to the development of the priority directions of science and the development of the latest materials, equipment, and technology. But then another author states with regret—only 22 percent of the developments correspond.... And adds—our leading scientific research institutes, which were not made a part of the complexes, are working in approximately the same way. So what are interbranch scientific technical complexes providing?

The question is not idle—23 interbranch scientific technical complexes are now operating in the country. They unite a considerable intellectual and production potential—scientific research institutes and design bureaus, scientific production associations and plants. Over 400 organizations and enterprises and more than 200,000 people are participating in one way or another in the work of the complexes. It is all the more alarming that the national economy is not sensing very much the influence of interbranch scientific technical complexes, while several of them have not coped with the main task—to attain leading levels in the priority directions of scientific and technical progress. What is the reason for the failures and disillusionments? The conversation of our correspondent with B. Motorygin, chief of the Department of the Improvement of the Economic Mechanism (the Consolidated Complex of Scientific and Technical Progress) of the USSR State Committee for Science and Technology, began with this question.

B. D. Motorygin: I believe that the basic reason is that interbranch scientific technical complexes were pampered back in the cradle of the administrative system. Is it worth being amazed that the children inherited the character traits of their patents—for the complexes were established before the USSR Law "On the State Enterprise (Association)" was passed and before the new economic mechanism began to operate in science. The government approved the structure of the complex—the scientific research institutes, design bureaus, and plants that are a part of it. The State Committee for Science and Technology and the USSR Academy of Sciences approved the plan of operations. Everything was regulated to the limit, while there is nothing to say about

financing. Each member of the complex received assets from its department, which, as a rule, reluctantly loosened its purse strings for the work of "others." Even now, when an entire package of laws and decrees, which have liberated economic activity, has appeared, we are attempting to manage interbranch scientific technical complexes by command methods. And if something does not go well, appeals are heard—Is it not time to use authority?

PRAVITELSTVENNYY VESTNIK: But there are any number of possibilities. Issue shares, open innovation banks, establish any associations, concerns, companies, while stepping over departmental barriers. So are interdepartmental scientific technical complexes now needed at all?

B. D. Motorygin: I would not pose the question so categorically. It has been known for a long time that impressive achievements and pioneering solutions appear at the meeting points of different directions of science and technology. Interbranch scientific technical complexes were also established for the sake of this—by their interbranch nature they are actually similar to other present associations. But they also have an essential difference—stable work in a priority direction, be it welding, microelectronics, methods of combating corrosion, or laser technologies, is required of interbranch scientific technical complexes. Figuratively speaking, they are aimed at the solution of "perpetual" problems of scientific and technical progress. Another association might break up, its members might form some new concern and begin another works. If an interbranch scientific technical complex breaks up, we will fall hopelessly behind.

PRAVITELSTVENNYY VESTNIK: They are indeed aimed, and the goal in many cases is just as far away as before. What is one to do?

B. D. Motorygin: There is one solution—to reject administration by mere decree, to incorporate interbranch scientific technical complexes in the system of economic methods of management. Not to command—"develop," "introduce," "report on the fulfillment of the plan," but to develop such a system of stimuli, in case of which the members of interbranch scientific technical complexes would themselves consider it advantageous and honorable to work on a priority program. It is necessary to manage precisely a program of the development of new equipment and technology, and not a conglomerate of institutions.

PRAVITELSTVENNYY VESTNIK: For this it is necessary at the least to change the present status of interbranch scientific technical complexes.

B. D. Motorygin: Precisely this is also envisaged in the draft of the new model statute, which was drawn up by the USSR State Committee for Science and Technology with the participation of the union State Planning Committee and State Committee for Material and Technical Supply, the Ministry of Finance, the Academy of Sciences, and managers of the interbranch scientific technical complexes themselves. The fundamental difference of the draft from the document now in effect is that all the relations within the complex are formed only on a contractual basis. And in addition, only with the consent of the labor collective can an institute, design bureau, or plant be included in an interbranch scientific technical complex. The participants retain departmental subordination and economic independence, but, of course, assume duties on the accomplishment of the tasks that are attached to the complex. In order to ensure the democratic nature of management and to guarantee equal relations among the partners, it is proposed to establish a supreme organ of management of the complex—the council of the interbranch scientific technical complex. And, of course, there is no strong-willed planning—the complexes themselves approve their plans in the council, while the State Committee for Science and Technology merely checks to what extent the proposed developments conform to the highest world achievements.

PRAVITELSTVENNYY VESTNIK: But if contracts become the basis of the relations among partners, hence, all the activity of interbranch scientific technical complexes will be subordinate to the principles of cost accounting. But it, as practical experience shows, rejects basic, exploratory research. And without it what are interbranch scientific technical complexes for? What kind of breakthrough into the future is there here—a focus on petty topics, the duplication of old developments, the pursuit of a profit, in short, much of what we now see at scientific research institutes that are operating on a cost accounting basis, will begin.

B. D. Motorygin: The possibility of allocating budget assets for exploratory research is envisaged in the draft. Ministerial centralized funds for the development of production, science, and technology will also become one of the sources of financing during the transition period. In the future a kind of innovation bank will ensure the financial independence of interbranch scientific technical complexes—in the complexes it is proposed to form a fund for the financing of work on unified plans, a bonus fund, and a foreign currency fund. They will be formed exclusively from cost accounting receipts. Moreover, interested enterprises, associations, cooperatives, and banks can participate in their establishment on a sharing basis. In short, the members of an interbranch scientific technical complex will themselves see to their own financial well-being. In turn, all the output, which has been produced in accordance with the order of the complex, should belong only to the interbranch scientific technical complex and be sold with its trademark.

PRAVITELSTVENNYY VESTNIK: Only will there be a demand for it? Here, after all, such a word has taken root—"introduction." As though scientists are offering an enterprise not an innovation, but are introducing a resident in a foreign country.

B. D. Motorygin: What is amazing here: established production in case of the absence of a market and in case of a chronic shortage does not like innovations—because of them there are only troubles and no profit. Therefore, they "introduced." Now it is proposed to exempt both the developers and the producers of fundamentally new equipment from payments to the budget. Either the entire or a significant portion of the profit and revenue remains at their disposal. The assets not used during the year are carried out to the next year. It seems that this is a powerful stimulus under the conditions of cost accounting—work on equipment and technology of the future will become mutually advantageous.

PRAVITELSTVENNYY VESTNIK: I have my doubts. Money is valued when it is possible to buy something with it. But if one has to get, try to wheedle, and drum up nearly everything—from boards to an experimental stand—what is the point of such stimuli?

B. D. Motorygin: Of course, when a collective can neither build a vacation hotel or housing or properly equip a laboratory with earned money, stimuli do not work to full effect. But a mechanism of wholesale trade in material and technical resources and equipment is being developed in the country, although not as quickly as would be liked.

PRAVITELSTVENNYY VESTNIK: I am an optimist, but, I am afraid, in the next few years the choice here will be small.

B. D. Motorygin: This, too, has been taken into account—the shortage, the resources, which are distributed in a centralized manner, in the supply plans and balances should be allocated to complexes by a separate line. Moreover, interbranch scientific technical complexes will be their fund holders—you will agree, during the transition period from a command economy to a market economy this is also a significant stimulus.

Of course, life is moving ahead—a number of principles, which were incorporated in the draft, have already been implemented, others are being studied and will, apparently, soon be adopted as laws or government decrees.

PRAVITELSTVENNYY VESTNIK: Boris Dmitriyevich, then a final question: Does the government need precisely now to approve a statute, the ideas of which yesterday would have seemed excessively revolutionary, while now do not add that much to everyday practice?

B. D. Motorygin: I am certain that it is necessary. And this is not only my opinion—many economists, organizers of science, and managers themselves of interbranch scientific technical complexes, who took part in the preparation and modification of the draft, believe that. After all, if one were now to approve the new statute, interbranch scientific technical complexes could work more than a year in accordance with a version, which is close to the economic mechanism, which the USSR Supreme Soviet and the government intend to initiate during the 13th Five-Year Plan. In this time interbranch scientific technical complexes would already acquire some experience, would establish ties, and would identify competent, able specialists, who are capable of working under the new conditions of management. You will agree, this would be a significant reserve of knowledge.

Role of Courts in S&T Progress

907A0124A Moscow NTR TRIBUNA in Russian
No 1-2, 19 Jan 90 p 7

[Interview with Doctor of Juridical Sciences Anatoliy Aleksandrovich Sobchak, professor of Leningrad State University and USSR People's Deputy, by Ye. Domnysheva and An. Shakhov: "A Shield for Science. Doctor of Juridical Sciences A. Sobchak, USSR People's Deputy and Professor of Leningrad State University, on the Role of the Court in Scientific and Technical Progress"; date and place not given]

[Text] **NTR TRIBUNA:** The inventor, innovator, and even authoritative scientist, who has gotten into a conflict, usually fights for his idea in all kinds of high instances. But most often he ends up in court on the initiative of...his opponents. The trouble, Anatoliy Aleksandrovich, is that the recurrences of tragedies, which are similar to those that befell N.I. Vavilov in the 1940's, K.N. Khudenko in the 1970's, and I.A. Khint in the 1980's, have also not faded away today.

Not even an explanation of this paradox, but another thing interests the readers of NTR most of all. What worries them is how is one to transform our court from an instance, which is capable of punishing innovation, into its shield?

A. A. Sobchak. Here one cannot get by without a discussion of the state monopoly of "truth in the last instance." The administrative command system is based on this. Now everyone knows about this. But not everyone realizes that behind this, simply speaking, is a fear of the truth. And often the truth, which tomorrow all the same will show what it is in reality.

So it also happened here in Leningrad. During the recent election to the USSR Supreme Soviet the majority of executives of the city and oblast were rejected. But they went into the election with complete confidence of success. And, what is characteristic, they relied here on the forecasts of the sociological service that served them. This time the sociologists sought the results of their research not in the reality of life, which is forming today, but in the expectations of the client of the campaign research, which had formed yesterday.

Science cannot be science while it serves the apparatus. It should enlighten it. While for this, I am convinced, it would be far more important to separate science from the state than the church from the state.

NTR TRIBUNA: We should have an enlightened apparatus....

A. A. Sobchak: Most likely such does not exist. And still the aspiration for the complete elimination of the apparatus is a barbarian aspiration for anarchy. But the dream about an apparatus that in itself is responsive to the challenge of the future, even simply of tomorrow, and about a circumspect and prudent apparatus is, so it seems to be, an illusion.

Do you think that they are cursing bureaucracy abusively only in our country, during perestroyka? It is the talk of the town throughout the world. And, incidentally, in the same America, perhaps, to no less an extent. And everywhere the voice of scientists is being heard all but more loudly than everyone in this critical chorus.

And everything is because the apparatus and science, the bureaucrat and the researcher have different functions and possibilities. The former have administrative and executive functions, which are by no means conducive to the pluralism of opinions, the latter have analytical functions, which are simply impracticable without the bold, but cold-blooded comparison of the most contradictory data. These types of activity, which are different by their very nature, as a rule, are still incompatible.

Hence, it can be a question only of science, which is separated from the apparatus in the sense that the apparatus can only ask it questions, while on no account suggesting and especially imposing answers that are acceptable for itself.

NTR TRIBUNA: We are, perhaps, digressing greatly from the question with which we started....

A. A. Sobchak: But you are mistaken. The trouble, with which you began, stems precisely from the subordination of science to the administrative command system. Here is what imposed on it and scientists the performer-commentator role. That is, made them a part of the management apparatus, having reduced to naught their professional influence on it.

This appeared most clearly of all in the fate of sectorial science. If anyone would, would it (no one will remember!) just once act as the opponent of departmental "scientific despotism." Here are the project of the diversion of northern rivers to the south, the Tyumen Petroleum Refining Complex, the Volga-Chogray canal, the Kirishi BVK, and the Leningrad Levee. How many scientist-opponents these projects had—they did not listen to and did not hear anyone....

NTR TRIBUNA: How, all the same, for all its natural polemical nature did they succeed in subduing science to such an extent?

A. A. Sobchak: Little by little. In the opponent of some project or program, on which the favor of the apparatus had been thrown, they began to see not a partner in the solution of the problem, but an adversary. Then the opponent was shrouded in "the image of the enemy." If only that had been just rhetoric!

Since Truth does not have a flexible backbone and the scientist, who is devoted to it, also does not bend, hence, it is necessary to break him....

That is how it happened with Academician N.I. Vavilov, with the mention of whose tragic fate we began our conversation. What, let us say it that way, did the organs of that time do, having ruined this man, a prominent scientist? They consolidated the monopoly of T.D. Lysenko and Lysenkoism. With what did domestic science pay for this? With a recoil from the achievements of world science for decades. And what did our society, you and I, people of today, get as a result? Empty food shelves and by no means only them.

NTR TRIBUNA: Probably, so that nothing similar would happen again, it would be necessary to get clear that scientific problems are not subject to court rulings....

A. A. Sobchak: In this regard, perhaps, no one is mistaken. For when confronted with a new scientific problem only he, for whom its solution is too much, resorts to the court. And only in order to hinder its solution, if only by just having compromised those capable of solving it. And in this way to defend their monopoly position in science.

NTR TRIBUNA: But how did the court, which by definition is impartial, turn into a tool of such, you know, scientific despotism?

A. A. Sobchak: It could not, perhaps, have been otherwise. The point is that our court system underwent the same tragic metamorphosis as science: both gave themselves up to "the tender mercies" of the administrative command system. While a common fate also befell them owing to their natural relation.

Indeed, science is inclined to seeking the truth, as, after all, the court also is. But we have already come to the understanding that a search for the truth is possible only owing to the independence of the seeker, in one case the researcher and in the other the judge. But there is no independence....

NTR TRIBUNA: The circle is closed, the vicious circle. How is one to break it?

A. A. Sobchak: "Break" is the wrong word. Impatience, pardon the frankness, it turns out, is also characteristic of you. But it is half a step from impatience to intolerance. So intolerance, which destroys an opponent—it does not matter whether it is from a chair, for example, a scientific council or in a prosecutor's speech or at a rally—is one of the most dangerous obstacles to perestroyka.

Here I cannot but recall tragic Tbilisi. And the speech there of our Minister of Foreign Affairs E.A. Shevardnadze. More precisely, in my opinion, the key phase

from that speech of his: "We do not have," Eduard Amvrosiyevich said at that time, "a culture of dissent."

NTR TRIBUNA: Do you think that it is also necessary to cultivate this culture in the court?

A. A. Sobchak: Certainly. Without this one will not restore the equality in the face of the court of the accusation and the defense, will not firmly establish the presumption of innocence, and will not achieve the controversial nature of the trial. And one will not succeed in restoring in the court the truth, without preventing it from acting independently and circumspectly. And prudently.

For very often, especially in connection with conflicts, which interest your readers, both the person himself and the job, which he does, are on trial. The fates of both are inseparable. But, having restored justice, the court in so doing also often restores scientific truth. But this inevitably entails tragic consequences, which also affect, in addition to those innocently convicted, a vast group of people who do not have anything at all to do with the case....

NTR TRIBUNA: Here the notes of Iokhannes Aleksandrovich Khint, which were published last summer in NTR (No 10, 1989), automatically come to mind: "Our most important idea," he wrote already in prison, "was the development of the scientific aspect that was discovered by us.... In a short time we succeeded in achieving much. If punish follows for this, this will signify the rejection by thousands of enterprising, resourceful people of work on innovations and their introduction and the aspiration to be of the greatest benefit to society. They will begin to be afraid, will reject the taking of risks, and 'will lower the sails'."

A. A. Sobchak: Yes, another of the causes of our scientific lag lies in this. The only hope is that not everyone became afraid of taking risks, not everyone "lowered the sails." In the country there are still plenty of healthy and productive scientific forces.

I have just returned from the United States. I met there with colleagues. And, you know, I was convinced that American lawyers, of course, are better than ours in practical terms, but in theoretical terms ours at times surpass them. It turns out that the tenacity of the healthy forces of domestic science is undying. It now also needs transformations, which are just as profound and, in principle, are in common with the court system.

And in science itself one ought to dismantle the structures which have been borrowed from the administrative command system.

Administrative work most often not only hinders scientific work, it transforms the very psychology of the scientist-administrator and tunes him to the "order-execution" wave. He already accepts the bureaucrat more easily than he understands the researcher, he values official obedience more highly than scientific curiosity. Administrative thinking, which is disposed to standardization, is merely irritated by original suggestions. In such an atmosphere mediocrity begins to prevail. There are more and more scientific personnel. The group of genuine scientists narrows.

We need an Academy of Sciences of a completely different pattern. Personally I do not expect the transformation of the existing one. The establishment of the Russian Academy raises my hopes.

I hope that this will put an end to election to the academy "according to the managerial criterion" and will firmly establish the tradition of the nomination of candidate members and corresponding members directly by the hands of the most productive portion of scientists. Having established in the RSFSR an efficient model of the academy, it will already be easier to transform the USSR Academy of Sciences itself as well.

NTR TRIBUNA: Allow us a final question. How is one all the same to avoid the "court sacrifices" of science?

A. A. Sobchak: For that an independent court first of all is needed. The negative experience, which has been gained by us in such matters, in my opinion, dictates if not the main, then the first question, to which both the preliminary investigation and the court should seek an answer: Is a conflict over a scientific problem not disguised in one case or another as a criminal plot?

The verdict in the case of a person, who has actually violated the Law, and the morals of the scientist should not cast a shadow on achievements, which are real and are needed by society. For this in the verdict or special ruling the court should separate with all clarity what is criminal from what is scientific fruitful.

It is also necessary that scientists and all the Soviet people in general would believe in the court as an organ of protection, not repression. Now every normal person in our country has a kind of "court phobia." One of the tasks both on the difficult path of the building of a law-governed state and in the no less difficult matter of accelerating scientific and technical progress in our society is to overcome it, having firmly established judicial authority as one of the three independent components of the law-governed state (the legislation, executive, and judicial components).

Success of Independent Engineering Organization Described

907A0114A Moscow MOSKOVSKAYA PRAVDA in Russian 22 Dec 89 p 2

[Article by M. Temchina under the rubric "The Fate of an Invention": "The Manager and the Engineer"]

[Text] In this two-story green detached house, which is on Prospekt Mira, 39, you will never encounter loafers. Until late evening here the bright, elegant telephones chirp, the intercomm and telex operate, display screens flash, and the processing of data on personal computers

proceeds. Biologists and physicists, construction workers and medical personnel—people who work in the most different sectors of industry—come up here, to the second floor. They come with steadfast confidence: Here, at the Inzhener Center of Scientific and Technical Creativity of Youth, they will understand them and help them without fail.

"What help do you expect from the center?" I address one of the visitors, a quiet elderly man wearing glasses, with a folder in his hands. Boris Vasilyevich Kharlamov is an inventor and a candidate of technical science. By profession he is a designer and worked his entire life in the aviation industry. Now he is retired. But he came to the Inzhener Center so that they would help with the introduction of his next development—turbomolecular vacuum pumps: They are very necessary for aeronautical engineering. Kharlamov is now talking with one of the staff members of the center, manager Sergey Kornitskiy: Precisely he is dealing with Kharlamov's case.

"Sergey, how do you intend to act?" my question is now addressed to the young manager. "After all, the introduction of inventions is an old problem, which has already set everyone's teeth on edge, as they say, a 'sore issue.' It is well known how many trials our stoic innovator has to endure before one or another development of his will see the light. How are you solving this most urgent problem?"

"Now this is no longer a big trouble for us," S. Kornitskiy replies. "In the 1.5 years of existence of the firm it has been possible to gather a quite decent card file—what is called a 'bank of performers,' in which more than 5,000 specialists are included. These are designers and process engineers, construction workers and power engineers, physicists and chemists, programmers, electronics experts—people of the most different occupations. From them we make up a group of specialists—each in his own field—and form a creative collective, which will fill the order. Here, strictly speaking, is the entire principle of the work."

"Is everything really that simple?" the reader might question. And his distrust will be entirely understandable: for until recently the interests of the inventor himself and the "alien" enterprise by no means coincided. They had neither a common goal nor a connecting link. A certain middleman, who would agree to take upon himself the functions of an organizer and to lay a certain bridge from the author of a new development to the manufacturing enterprise, was obviously needed in order to unite the interests of the client and the potential performer. The Inzhener Youth Scientific and Technical Center also became such a uniting element: it was able to see to it that all three parties would be interesting in doing one common job quickly and well—it is simply unprofitable for them to work poorly.

The Inzhener Center annually concludes more than 500 contracts for the performance of the most different types of jobs. Depending on the desire of the client the staff members of the firm undertake to organize the service of all kinds of instruments and equipment, to supply programs for the use of computer hardware, to make an economic analysis of the economic activity of an enterprise, and to help convert it to a brigade, collective, or lease contract, to full cost accounting and self-financing. If required, to train specialists in the area of the organization of joint ventures and marketing, to render an entire set of patent services, and to make a scientific and technical evaluation.

The Inzhener Center can do much. Construction and nuclear power engineering, the development of new materials, the development and introduction of advanced instruments and technologies, architecture, ecology and transportation, the automation and computerization of enterprises—the sphere of activity of the center is quite broad. And what is of no little importance: it will fill any order three- to fourfold more rapidly than at the majority of traditional state enterprises. Today such recognized firms as the Moscow Motor Vehicle Works imeni Leninskogo komosomola and the Kvantemp Association, the Azot and Uralmash plants, the USSR Academy of Sciences and the Institute of Atomic Energy imeni I.V. Kurchatov are willingly cooperating with the youth center. And such a partnership is not by chance: the Inzhener Center thus far does not know complaints. The fact that in its still very short life the center has already managed to become a millionaire—today precisely such an amount is in its account at the bank—also testifies to its successes.

With developments, in order to imagine of what level the Inzhener Center deals, we will tell about just two of them, which were developed at the Institute of Physical Chemistry of the USSR Academy of Sciences. One of them is a laser for large concert measures: It creates large three-dimensional letters and numbers in the hall directly over the audience. The performance is very effective, striking, and truly festive. The other development is of a completely different sort: This is a laser for the treatment of glaucoma. Today in our country only Doctor S. Fedorov at the Mikrokhirurgiya glaza Interbranch Scientific Technical Complex has similar instruments, which were purchased, incidentally, for foreign currency.

At the Inzhener Center there are only nine managers—production organizers. They undertake to fulfill in the shortest time and in a high quality manner the amount of work, with which the majority of scientific research institutes and design bureaus of plants do not cope. And they are achieving, let us note, rather good results. How is one to explain such success?

"There is no secret here," center director A. Levchenko replies. "It is simply profitable for the client to deal with us: a minimum of bureaucratic registrations, a short time of the filling of orders, the most friendly treatment. And there is another important thing: centers like ours are attempting to return to engineering labor the prestige that was lost over long years, and in many respects its remuneration is contributing to this. For we have contract

prices. The performers understand perfectly well: the more quickly and better they fill orders, the more quickly they will receive the amount due. While it, incidentally, can be fairly large—this depends on how efficient, urgent, and socially significant one development or another is."

"Aleksandr Pavlovich, do you believe that it is a matter here exclusively of money?"

"No only that: We give people interesting work—such work which makes it possible to see quite quickly the real fruits of their labor."

'Progressive Tax' on S&T-Related Earnings Criticized

907A0121A Moscow NTR TRIBUNA in Russian No 1-2, 19 Jan 90 p 4

[Article by K. Lipovskiy and Yu. Sidorenko, associates of the Institute of Electrodynamics of the Ukrainian SSR Academy of Sciences, under the rubric "I Ask To Speak": "A Law or Arbitrariness?"; capitalized words as published; first two paragraphs are NTR TRIBUNA introduction]

[Text] In the summer of 1989 at the very end of the session of the USSR Supreme Soviet, the government of the country had accepted a decree on the introduction of progressive wage taxation.

Today, half a year after the adoption of this decree, K. Lipovskiy and Yu. Sidorenko, associates of the Institute of Electrodynamics of the Ukrainian SSR Academy of Sciences, reflect on its influence on the course of scientific and technical progress in our country.

The procedure of adopting the decree was clouded by the obviously incorrect step of the government: It had not specified at that moment before the country and the Supreme Soviet the reference point, the so-called base of comparison. Then, already after the adoption of the decree, it announced that the comparison would be made with the fourth quarter of 1988, that is, with a year-old level. During this time quite large changes had occurred in our country. Thus, for example, the institutes of the Ukrainian SSR Academy of Sciences began the changeover to the new forms (cost accounting) only in the second quarter of 1989.

Of course, the changeover to cost accounting for the majority of collectives, which have urgent themes, was accompanied by a definite increase of economic contractual themes and the corresponding increase of the wage fund. Moreover, new schedules of positions and salaries were simultaneously introduced.

But, first, this increase was accomplished LEGALLY and was achieved not due to the violation of the conditions of management, but precisely within the framework of the quite rigid conditions, which were established by the government and were introduced at scientific research institutes and enterprises less than a year ago. Here, for example, at our institute the standards of the formation of the wage fund have not been exceeded, new additional state budget financing with a wage fund has not been received. When the government and legislators ordered scientific organizations and many enterprises to operate under the conditions of cost accounting and the lease, they said that whoever works better will earn more and live better, and absolutely did not warn that a year would not pass when in the most unscrupulous manner they would impose an exorbitant tribute on the increase of these wages. Moreover, the organizations, which managed to adapt more quickly to the new conditions and to work better, were plundered to a greater extent.

Second, the increase of the wage at scientific research institutes is explained by the corresponding increase of labor productivity: after all, a sharply increased amount of economic contract jobs was performed by the same forces (given the fact that it has become more and more difficult to conclude them, since clients with the changeover to cost accounting have become more and more economical and have ceased to throw money about).

Third, the increase of the wage concerned personally first of all not the highest group of scientific personnel (academicians and doctors previously were also supported materially comparatively well, although their wage rates had not been revised since 1946), but namely the basic producers of the scientific and technical product: engineers, scientific associates of the junior and middle level, that is, those who earlier were placed in an entirely humiliating material position, which does not correspond to their level of knowledge and abilities and their significance for scientific and technical progress of the country.

And, finally, fourth: Is it really tolerable and legal to limit by force the wage fund of an organization, which is operating under the new (cost accounting) forms of management, at the level of the period, when this organization operated under old forms which are recognized as stagnant, inefficient ones? Arguing logically, it is possible to ask: Why not take then as a base 1946, when the country lived on ration cards? What kind of cost accounting can there be, if restrictions on the wages of individuals or organizations are introduced?

The fact that the government got this decree passed by means of a trick proves that its understands its regressive, antiperestroyka nature. Why is it taking this path? The answer becomes clear as soon as we understand that the restrictive steps are being imposed for a period of 15 months, starting with the fourth quarter of 1989. The point is that in the summer of this year the government was given 1.5 years (that is, 18 months) to achieve real changes in the economy, otherwise it will have to yield its seats to a new membership. By October, three months had already elapsed. There remained 15 months. And it is proposed to impose these steps precisely for these 15 months! What is the government rescuing—the economy or itself? It is clear that the government is making an attempt to create favorable conditions for its own work for the allotted period. Here, it seems, L.I. Abalkin is sincerely trying to convince himself that then he will return to purely economic methods of the management of the national economy as soon as he copes somewhat with the difficulties of the transition period.... This is a delusion! First, repressions have the quality only to increase. During these 15 months many new problems will appear (including ones to which this decree has given rise), and new "temporary rigid unpopular steps of

extra-economic coercion" will be needed, and this snowball will grow. Second, on the contrary, for the drastic improvement of the economy it is necessary to create preferential conditions both for individual scientific and technical personnel and for the organizations and enterprises, which govern scientific and technical progress. Here it is necessary to understand by preferences the situation, when everyone has normal conditions for management, while someone has especially favorable conditions (credits, a lower tax, and so forth). This decree does not give preferences to enterprises that produce consumer goods, it simply does not rob them. Preferential conditions imply the absence of restrictions on nearly everything, and at any rate on the wage fund. Only such a means leads to progress. Otherwise there are war communism and stagnation.

The proposed rate of the tax on the profit, which, in the opinion of L.I. Abalkin, may come to 60 percent of the amount of the profit, is just as unpromising! This means that the state intends to take from the enterprise the bulk of the profit and in so doing expects that the enterprise will work with initiative and will develop actively! Well, is that not absurd?

The incorrectness and erroneousness of these steps and the anticipated negative consequences are just as obvious as the consequences of the decree adopted in 1985 on the combating of drunkenness and alcoholism (the increase of home brewing, irregularities and a ration system for sugar, the increase of prices for many goods and services for the people) were obvious to everyone, except the government. Only the consequences will be, of course, significantly more serious. By that decree they ruined the culture of wine making (and this is the same kind of culture as all others), now they have struck at scientific and technical progress of the country....

The bringing into the Council of Ministers of Academician L.I. Abalkin and other people with academic degrees had the goal to increase the intellectual level of the government and to give it a chance to switch from voluntaristic power methods of the management of the national economy to economic method. We all expected that these new people on the basis of their high level, taking a democratic platform, would propose such ingenious, wise, remarkably democratic steps, which would make it possible immediately to attract the best minds of the country, would mobilize the entire scientific and engineering potential, would stimulate the initiative of manufacturers and businessmen, and would accelerate both scientific and technical progress in general and the increase of the production of new goods in particular.

What did we get? We got at once what are called "temporary drastic economic steps" which are aimed, by the admission of Academician L.I. Abalkin, at limiting the increase of the wage first of all of the scientific and engineering corps of the country. Why are academicians and doctors needed in the government for the taking of such voluntaristic steps? From this standpoint people not only without degrees, but often also without an education at all managed the country splendidly for 70 years. They prohibited, restricted, then subsidized, then wrote off debts—and managed and managed. The fact that L.I. Abalkin and the other scientists have not thought up anything better testifies not to the hopelessness of the situation, but to the level of economic science in the country and to the psychology of servitude, which has eaten into the blood and even the genes of our "free-thinking" economists, economic managers, and parliamentarians as well.

There testify to the weakness of the position of L.I. Abalkin both the fact that he has not left the post of director of an academic institute (how is it possible to supervise a scientific institute while being deputy chairman of the Council of Ministers? Only in absentia) and the fact that he is defending this position. The request of L.I. Abalkin in response to the developed criticism: "Do not bother us for 15 months, then judge," is impolite. It is the duty of every interested member of society to give a public, objective, impartial evaluation to any proposal of the government. Only in this case does the resulting decision have a chance to become the optimum decision, only such a procedure is the norm of discussion in a democratic country. The statement of Academician L.I. Abalkin that "since they are criticizing this drastic step, hence, it has hit the mark," does not hold water. It turns out that all decisions, which are criticized, are correct. Which ones, then, are incorrect? The ones that are not criticized? That is a sample of the logic of the academician, who previously successfully substantiated all the noneconomic steps of the former government, but now has received the opportunity to conduct independently and directly experiments on the country. These experiments not only will have adverse economic results, but will surely also lead to serious social and political consequences.

What are the alternatives to the proposals of Academician L.I. Abalkin as the ideologist of economic reform? It seems that they do exist.

Leontief, a Russian by origin and a prominent world-level economist, came to the USSR. Would he propose, in elaborating steps on the improvement of the economy, as the first step drastic steps against those who should promote the growth of production and science? It is clear that he would not. And here a very simple idea emerges: Why are we willing to invest still uncounted billions of rubles so that our home-bred scientists, who were raised on the political economy of socialism, would conduct their next experiment on us? Is it not better for us and not more advantageous for the country to pay the same Leontief several paltry million dollars so that he would develop for us a truly practicable scientific economic model of perestroyka, which is founded on a world scientific base, of which he has a complete command? In the end, it is possible to bring in for consultation not only Leontief, but also the entire cream of world economic science, it is possible to hold a competition-seminar on the theme "Economic Reform in the USSR" with the

payment of a well-deserved bonus to the winners (genuine scientists, true, should also decide). This will pay for itself many times over! What is preventing this? The vanities of several bureaucrats of the all-union machinery, who are in power? Yes, of course. But their vanities rest firmly on the foundation of our inertia.

All associates of scientific research institutes, design bureaus, and enterprises of science-intensive sectors of production and all economically educated and simply not indifferent people should give an objective evaluation to the proposals of the government, which, undoubtedly, are at variance both with several laws, which have been passed and are being prepared, and simply with the tasks of perestroyka, particularly the task of establishing a law-governed state. At a session of the Supreme Soviet while discussing the Law on Property they proposed "to take steps, which could guarantee the owner compensation for all costs if the state and its legislative organs make up their mind to revise in the future laws that are passed today. Any citizen and labor collective should have the right to demand through the court compensation for losses which are connected with the loss of property" (IZVESTIYA, No 292, 19 October 1989). The introduction of an additional tax on past wages will also lead many organizations and enterprises to the loss of property, for many of them either will have to pay a "big" tax in order to obtain during the 4th quarter of 1989 the same wage, which they received during the 2nd and 3rd quarters, or will not have to pay a tax, but will have a sharp loss in the wage, and often both. Taking into account that the wage fund has already been assess taxes in the form of the income tax and overhead, this "tax" is already the triple taxation of the wage fund, which has been introduced in retrospect, and cannot be recognized as legal.

No one would object if this and other decrees of the government were in effect for even a longer period than 15 months, but would be in effect from now on and would not be applied back: to already concluded contracts, to already completed jobs, to the already earned profit, to the level of the wage fund, which has already been achieved within a legal framework. These would actually be compulsory drastic, but legal steps. The loss of previously earned property, which is inevitable for many people and collectives as a result of the introduction of this decree, clearly defines it as robbery with the use of deception (and this is not a literary technique, but the statement of a fact in mild form).

Unfortunately, all these steps of the government were taken with the approval of the Supreme Soviet of the country. It turns out that with one hand the legislators are protecting us against the arbitrariness of the government, but with the other are then and there allowing it. By driving the people into a dead end, they are also driving themselves into it.

'Fund for Economic Innovations' Supports Independent S&T Work

907A0125A Moscow NTR TRIBUNA in Russian No 1-2, 19 Jan 90 p 15

[Article by A. Slavin: "What Is the FEI?"]

[Text] "Quite a large number of articles, the authors of which criticize the present bureaucratic system of the management of Soviet science, have already appeared in NTR. They call for the establishment of independent decentralized structures which compete with each other: independent firms, state and research organizations, philanthropic scientific foundations.

"But I have somehow already become tired to reading that for this it is necessary to use (in the more or less distant future) the abundant foreign experience. Have we changed over anywhere from such appeals to the practical assimilation of modern models of the organization of science? In other words, does there now exist any domestic experience of the flexible, unossified development of research?"

[Signed] V. Sergeyev

Moscow

It seems that our reader will be able to find the answer to his question in the note being published on the independent philanthropic Fund for Economic Innovations (FEI).

The basic goal of the FEI is the identification and financing of advanced socioeconomic developments and initiatives. For example, one of the most typical and priority programs of the FEI is "Modern Models of Joint Stock Forms of Ownership and Management." Candidate of Economic Sciences S.V. Pyatenko, senior scientific associate of the Institute of World Economics and International Relations of the USSR Academy of Sciences, is supervising the program. At the present stage, when the problems of joint stock ownership and the organization of a securities market are being brought to the forefront, the study and introduction of foreign experience are one of the most urgent tasks. The Central Institute of Economics and Mathematics of the USSR Academy of Sciences, the Soviet-Italian Perspektiva Kronmark GMS Joint Venture, and the Perspektiva Scientific Technical Cooperative are acting as the sponsors of the program "Modern Models of Joint Stock Forms of Ownership and Management."

The Educational Scientific Complex of the Moskovskiy kooperativnyy institut Tsentrosoyuza Consumer Cooperative and the Faktor Scientific Research and Introducing Cooperative were also among the sponsor-trustees of the FEI.

The program, of which the Integral Youth Center acted as the sponsor, is also very interesting. Its theme is "the formation of a new economic mechanism in USSR health care," Candidate of Economic Sciences A.V.

Telyukov, head of a sector of the Scientific Research Institute of Economics attached to the USSR State Planning Committee, and Candidate of Economic Sciences I.M. Sheyman, lead scientific associate of the Institute of World Economics and International Relations, are the supervisors of the program. On the basis of the analysis of world experience the developers of the program are advancing their own, in many respects alternative, set of suggestions on the accomplishment of the reform of the economics of health care.

The public council is the FEI organ that initiates and monitors the financing of some programs or others. Its members are: Doctor of Economic Sciences V.A. Volkonskiy, head of a laboratory of the Institute of Economics and Forecasting of Scientific and Technical Progress of the USSR Academy of Sciences; S.V. Lamanov, head of the Bureau of Management Consultations of the Integral Youth Center; Corresponding Member of the USSR Academy of Sciences V.L. Makarov, director of the Central Institute of Economics and Mathematics of the USSR Academy of Sciences. Candidate of Economic Sciences A.S. Slavich-Pristupa, senior scientific associate of the Institute of Economics and Forecasting of Scientific and Technical Progress of the USSR Academy of Sciences; Candidate of Economic Sciences I.N. Shokin, chairman of the board of the Soviet-American Ekspertek Joint Venture.

In the immediate plans of the FEI is the launching of a special program, which is devoted to the analysis of the consequences of the decrees on the extraordinary taxation of the assets being allocated by enterprises and organizations for the remuneration of labor, which were adopted by the USSR Supreme Soviet in August-September 1989. Another important direction is the organization of research on the theme "Banking Activity in the Contemporary Development Economy." Finally, the Fund for Economic Innovations acted as one of the initiators of the establishment of the Association of Consultants on Economics, Business, and Management. The basic task of this organization is the guarantee of the quality of consulting and the observance of professional ethical norms and the increase of the role and consolidation of consultants with respect to key questions of economic reform.

The address of the fund: 129310 Moscow, Ulitsa Babushkina, 3, Building 1, the Fund for Economic Innovations, telex 411706 MS1.

From the editorial board. Let us recall that this is not the first reply to questions of this sort. NTR has already told more than once about the possible forms of the flexible organization of creative scientific collectives, for example, "An Institute Without a Staff" (No 18, 1989), "The Third Component" (No 20, 1989), and so on.

Personnel Problems in Far East Institutes Outlined

907A0108A Moscow POISK in Russian
No 2 (27), 11-17 Jan 90 p 3

[Interview with Corresponding Member of the USSR Academy of Sciences Veniamin Petrovich Myasnikov, director of the Institute of Automation and Control Processes, by Sergey Kozyrev and Arkadiy Sosnov, under the rubric "The Portrait of a Problem" (Vladivostok): "From What the Far East Is Far"; date not given; first six paragraphs are POISK introduction]

[Text] He came to Vladivostok, as is customary to say here, from the "west." That is, from Moscow. But the example of Veniamin Myasnikov is an exception that merely confirms a sad rule for the Far East—scientists are leaving here.

What prompted him, a doctor of sciences and a professor of Moscow University, to go to the remote place? The selfless idea of stimulating provincial science? After all, for the present there are more problems here than achievements. And even the Moscow professor proved not to be protected from them.

During the days, when we interviewed Myasnikov, he, the director of the Institute of Automation and Control Processes and a corresponding member of the USSR Academy of Sciences, lived in a dormitory for scientists, but, if we want to be more precisely, in a small room cluttered with books, which was reminiscent of a bookshelf.

This is one of the most painful problems of the department: last year 1,600 people were waiting in line to obtain housing. Now one in 10 of them lives in a dormitory. If the wait is also shortened at the same pace in the future, it will be possible to eliminate it no sooner than in 20 years. But this is also on the condition that the number of "homeless" does not increase.

Another "scientific" problem is nurseries and kindergartens for the children of scientists. After all, look at what it comes to: parents are forced in turn to watch the child and in turn to go to work at the institute. And there are even fewer hopes for improvement here than with housing. As a result scientists are leaving. And this "brain drain" immediately affects the efficiency of scientific research. The Far Eastern scientific school, which has never had time to get on its feet, is suffering. And on what kind of scientific results, then, is it possible to count?

What does Veniamin Petrovich Myasnikov think about all this, does he have any desire to pack his bags? What prospects, in his opinion, does Far Eastern science have? Our conversation began with this.

V. P. Myasnikov: For me science now is people plus housing. We "export" to the Far East many new personnel from western regions. But approximately the same number are settling down here as are leaving. This is connected with many circumstances and first of all with the shortcomings of, as they now say, cultural and personal service facilities, as well as with the fact that up until recent times the institutes of our department were equipped substantially worse than "western" institutes.

Now we are forced to offer jobs only to doctors of sciences. I as the new director of the Institute of Automation and Control Processes was faced with the fact that it was difficult for me to hire a new associate, a candidate of sciences, let us assume, for the simple reason that I could not provide him with housing. And whereas doctors of sciences get in a special line, "ordinary" scientists end up in the ordinary general institute line. But this is for a minimum of 10 years.

POISK: It is a good stimulus to become a doctor....

V. P. Myasnikov: It is no laughing matter for me. This poor organization of everyday life is affecting the attraction of young personnel. As well as is the low wage of our scientific personnel. I want to stress—precisely low. And if we compare it with world standards, then....

POISK: When a candidate of sciences earns less than a bus driver, of course, he gets a stimulus...to drive a bus. But what were they able to offer him, besides the "supplementary payment" for a degree?

V. P. Myasnikov: At our academic institute there is a base chair of the Moscow Physical Technical Institute. We receive superbly trained graduates. But how much can I offer a young researcher? A maximum of 140 rubles. But they have taught him for 16 years, incidentally, he has high skill. Previously he also had a stimulus to increase it further. He reasoned as follows: I will exert myself and will defend my dissertation. Somewhere in five to seven years he will become a senior scientific associate and will receive a wage of nearly 300 rubles. Then it is necessary to exert himself some more and to defend his doctoral dissertation—so that it would increase more....

Now under the influence of the talk that dissertations give a scientist a life annuity and that this is a trivial thing, we are deciding to scrap this system. And the stimuli have weakened sharply. We are eliminating the desire of an enormous contingent of young people, who are coming into science, to increase their skill. The assertion that, after defending a dissertation, a person ceases to work, is incorrect. If I, the director, have a candidate of sciences who does not work, this is not his fault, but mine. I should organize the work so that he would be of some good. And so that I could make him accountable. But if I cannot do this, it is necessary to hound me, not him.

Incidentally, the talk that abroad the skill of scientific personnel and a diploma do not have value, is absolutely groundless. For example, it is impossible to become a professor of an American university without having a doctoral diploma. It is also not true that in America

academic science does not enjoy benefits. There the concept "tenured professor" exists. And this is $50,000 a year, which is not taxed.

It is impossible not to take into account the specific nature of scientific activity. Now we have introduced the electivity of managers of enterprises, but have already begun to understand that this is not always good. And this does not exist anywhere in the world. One has occasion to hear: oh, how undemocratic everything is in academic science! But it is necessary to examine very carefully what democracy is and what the opinion of the majority is. In science it happens as follows: precisely one person, and not the collective as a whole, is right.

How does group egoism manifest itself here? Associates reason: a new director, a fanatic of his own cause, will come. He will force everyone to take up this cause, but I want to dig my own little garden. I will vote for the director who is mediocre. He will not pester anyone.

POISK: But all the same do specific plans to get Far Eastern science out of such a difficult situation exist?

V. P. Myasnikov: We are on the threshold of reforms. We are relying mainly on young people. There is already the decision of the USSR Academy of Sciences and the State Committee for Public Education that science should unite in its activity with the university. I, for example, believe that this decision is not only a correct one, but also the only possible one. If we actually want the trend toward the development of science to emerge here, in the Far East, such an educational scientific complex is simply necessary. Therefore, our department should take care of the development of not only its own institutes, but also the university.

Now the main difficulties are connected with the fact that our university is very poor. It needs assistance, so to speak, purely material assistance. New buildings, dormitories, and new equipment are needed.

The university needs a reputation and such appeal that young people from Siberia and the Far East would rush to it. In this competition we are now losing to Novosibirsk University. For when a young person is making the choice on where he is to go to study, it is clear that for the present our Vladivostok University has fewer chances. As a result we are losing very many capable young people.

I believe that it is necessary to try to see to it that during training undergraduates would have the opportunity to work at our institutes and to participate in our research. And, of course, it is necessary to use our teaching potentials. The university should enlist scientists of academic institutes much more extensively in teaching. While we should enlist associates of the university in our work. Not only science and education win, here the social protection of scientists increases. Their wage increases, after all.

The alliance of science and education is also important for another reason. Today it is necessary to a significant degree to make the demands on undergraduates more strict. It is not necessary to try to see to it that everyone, who wanted to enroll in the university, would receive a higher education! We have confused two problems. A higher education should be accessible, but this does not mean that it is possible to get it automatically. It is necessary to work. To put in a large amount of effort and work. An education should not be easily accessible in the sense of expenditures of labor.

For the present the university, in order not to cut instructors, cannot, pardon me, pursue such a policy which would expel failing students, loafers, and people who do not want to work. But what is more advantageous for us—to graduate 150 people, 90 percent of whom will have more than modest knowledge, or 15 people, who have a training at the level of the highest world standards?

These steps will raise the prestige of education. It will become clear that not everyone can obtain it. It will remain accessible in the legal and physical sense to everyone, but it will still be necessary to prove that one is fit to obtain it.

POISK: Veniamin Petrovich, let us return to those who leave the university with a diploma in their pocket and come to you. Among the reasons why young people (moreover, not only they) do not settle down, you named as the main one the housing problem.

V. P. Myasnikov: Indeed, precisely it is the most urgent one. And it seems to me that the soviet organs of the kray must agree to an unprecedented decision—to grant scientific personnel priority in the construction of housing. Today the future of the region is connected precisely with the activity of scientists. Take ecological research, the study of the sea and shelf, the formation of new economic concepts of development. One must not spare assets for science. It will pay for itself with interest.

On the other hand, here many people take a lopsided view of the migration of scientists, especially ones who are already established and have a name in science.

I do not see, for example, a particular disaster in the fact that a doctor of sciences from Moscow or Leningrad came here, worked for 10 years, and went back. He established a scientific collective, people, who worked with him, and his ideas remained here. But without the attraction of such people and without these natural processes of migration we will not establish a scientific school. A scientist does not grow in a void, he is raised in a specific environment, in a collective, in which there are its own traditions and its own ideology. This is a necessary thing.

POISK: It seems that a reason has appeared to ask: How do you explain your own move to the Far East?

V. P. Myasnikov: I have, after all, been cooperating a very long time with institutes here. Very many of my students worked and are working here. And I came here having quite definite goals and scientific interests, which I wanted to realize here. And that is why, when such an opportunity to move here arose, I did not have particular hesitations. I can also say that I do not intend to leave here. On the contrary. There are probably people here, who would like me to leave here. But they have vain hopes.

POISK: Veniamin Petrovich, you are now due to geographic circumstances a provincial scientist. Does this role, which sounds for another researcher like a sentence, not frighten you?

V. P. Myasnikov: I will cite the following example. What is a provincial university? It is a university which can have just one prominent professor. Moscow State University is a capital university because there are many prominent scientists there and the student has the opportunity to choose. At first glance, Novosibirsk University is also a provincial university, but it does not occur to anyone to call it that. So that it is a matter, of course not of geography. For the syllabuses at our universities are the same. The difference lies in who gives them, these syllabuses. Such was the case in my youth. Around my idols there was always a crowd of young people, arguments seethed.

I remember my own graduate student years. These were continuous discussions, disputes, arguments. And this is the main thing. An environment of contact is needed. Precisely it breeds a scientist. And for the present we do not have precisely it in the Far East. A person cannot live alone in science. But at one time they forbid us to conduct scientific schools and to bring in specialists from the "west." They, it was said, come to you to sunbathe on the beach. And the complete incomprehension of the essence of the scientific school lies in this. Precisely it creates a unique atmosphere of contact of young people with prominent representatives of domestic science. And this at times provides much more than a year spent in lecture halls. Of course, scientific seminars are also needed, but the 10 days, which scientists spend together, is an enormous creative stimulus.

And we need it now as never before.

New Procedure for Certifying S&T Personnel Adopted

907A0113A Moscow PRAVITELSTVENNYY VESTNIK in Russian No 3 (29), Jan 90 p 5

[Article by A. Karavayev, chief specialist of the Scientific and Technical Progress Department of the Administration of Affairs of the USSR Council of Ministers: "Vocation, Knowledge, Title..."; first two paragraphs are PRAVITELSTVENNYY VESTNIK introduction]

[Text] The USSR Council of Ministers has adopted a decree on questions of the certification of scientific and scientific teaching personnel.

The new Statute on the Procedure of the Awarding of Academic Degrees and the Conferring of Academic Titles was approved (it will be put into effect on 1 July of this year), and changes were made in the prevailing Statute on the Higher Certification Commission Attached to the USSR Council of Ministers.

To improve radically the composition of scientific and scientific teaching personnel, to create favorable conditions for the creative activity of scientists and instructors, to reveal their abilities more completely—perestroyka in the sphere of science and the training of personnel has posed these tasks. One of the important conditions of their accomplishment is the need to improve the existing procedure of awarding academic degrees and conferring academic titles.

In March 1987 the USSR Government adopted a decree on steps on the improvement of the training and use of scientific teaching and scientific personnel. It was deemed necessary to carry out the restructuring of the training of such personnel, regarding it as an integral part of the unified system of continuous education in the country. The drafting of a new statute on the procedure of the awarding of academic degrees and the conferring of academic titles was envisaged by this decree.

Prominent scientists, executives of major scientific institutions and educational institutions, and specialists of the national economy were enlisted in the preparation of the draft of the Statute. Here the remarks, which were expressed in the press, as well as in numerous letters of citizens, were taken into account. The suggestions were discussed at conferences of the supervisors of specialized councils for the defense of dissertations and councils for the conferring of academic titles and at plenums and in the expert councils of the USSR Higher Certification Commission and were published in BYULLETEN VYSSHEY ATTESTATSIONNOY KOMISSII PRI SOVETE MINISTROV SSSR.

Then the draft was published in the press. The discussion was active. The commission, which was set up to modify the draft, considered, analyzed, and generalized about 400 suggestions and remarks. As a result a number of changes were made in the text of the draft of the Statute. In particular, the functions of the USSR Higher Certification Commission with respect to the checking of candidate dissertations were defined more precisely. Now the USSR Higher Certification Commission, although it checks all certification files of the seekers of the academic degree of candidate of sciences, conducts only a spot check of dissertations and if necessary repeals the decisions that have been made on them. The procedure of obtaining the permission of the USSR Higher Certification Commission for the defense of a candidate dissertation as a doctoral dissertation was eliminated. The time of the preliminary examination, as well as the time of the making of decisions by the councils on the acceptance of a dissertation for defense were shortened (from three to two months for a candidate dissertation and from five to three months for a doctoral dissertation).

The new Statute proceeds from the fact that the certification of scientific and scientific teaching personnel by the awarding of academic degrees and the conferring of academic titles should be regarded as a most important stimulus of creative growth and the stepping up of scientific teaching activity and as a qualified evaluation of a specialist. The seeker of a degree on the basis of a public defense of his dissertation is granted the right to aspire to the obtaining of the academic degree of candidate or doctor of sciences in conformity with the level of his skill and the importance of the research conducted by him. Academic titles can be conferred for great teaching skill, creative achievements in the training of specialists, and one's personal contribution to the development of science and the training of scientific and scientific teaching personnel.

For what in principle is the new Statute notable? First of all it is proposed to eliminate various kinds of demands, which are made on the seeker of a degree by the Statute now in effect, having left just two of them—thorough professional knowledge and scientific achievements in a specific field of science. The seeker of a degree, who does not have the academic degree of candidate of sciences, is permitted to defend a doctoral dissertation.

The criteria and demands on dissertations were also changed somewhat. They have been brought in line with established practice and common sense. For example, a doctoral dissertation is now regarded as a scientific work, in which a scientific problem, which is of great national economic, sociocultural, or political importance, has been solved, theoretical assumptions, the set of which it is possible to qualify as a new major achievement in the development of a promising direction in the corresponding field of science, have been formulated, or technical, economic, or technological solutions, the introduction of which make a significant contribution of practice and to the acceleration of scientific and technical progress, are set forth (in contrast to the demands now in effect, when a doctoral dissertation is qualified as a new promising direction in the corresponding field of science or solves a major scientific problem, which is of great national economic, political, or sociocultural importance)

Given the preservation of the principle of the awarding of academic degrees on the basis of the public defense of a dissertation, which has justified itself in practice, the awarding of an academic degree as an exception and without the defense of a dissertation upon the joint representation of the USSR State Committee for Science and Technology and the USSR Academy of Sciences to the authors of discoveries and the most important inventions, which provide a significant contribution to the acceleration of scientific and technical progress and have been registered in the State Committee for Inventions and Discoveries attached to the USSR State Committee for Science and Technology, is permitted.

The group of scientific directions, which can be the subject of a dissertation study, is being expanded. The restrictions on the size of manuscript dissertations are being eliminated. At the same time the list of works, which are equated with published works, is being expanded.

The time of the conducting of the preliminary examination of a dissertation, which is absent in the prevailing Statute, is being established. The time, upon the expiration of which the council is obliged to accept a dissertation for defense, and the time of the appearance of publications of the works of the seeker of a degree, which reflect the basic scientific results of the dissertation, upon the expiration of which a defense can be held, have also been shortened.

The seeker of a degree is granted the right to write the dissertation in one of the languages of the peoples of the USSR. He also has the right to defend the dissertation in case of negative opinions and conclusions. The holding of the defense of a dissertation in the absence of one of the official opponents, who gave a positive opinion, is allowed. The seeker of a degree is granted the right to familiarize himself with all the materials of his certification file. A copy of the conclusion of the expert commission should be issued to him within a 1-month period from the day of appeal. The time of the examination of certification files and dissertations in the USSR Higher Certification Commission has been shortened.

Taking into account that academic degrees and academic titles are of a qualification nature, in contrast to the prevailing Statute, a single basis for their deprivation has been established—mistaken awarding or conferring. Here it is envisaged that the consideration of questions of the validity of the awarding of academic degrees and the conferring of academic titles, the decisions on which were made more than 10 years ago, is not carried out by certification organs.

The enlargement of the group of scientific and scientific teaching personnel, on whom academic titles can be conferred, is envisaged. At the same time, given the preservation of the high demands on the scientific and pedagogical work of the seeker of a degree, the period of scientific teaching work, which is necessary for the conferring of academic titles, is being shortened substantially. Here it is established that academic titles can be conferred on scientific and teaching personnel of scientific research institutes, higher educational institutions and other similar organizations, who work at them through the combining of jobs.

The system of the certification of scientific personnel, which is set down by the Statute, differs substantially from the systems of certification in the most developed capitalist countries (the United States, England, and others). Whereas in these countries it is of a decentralized nature, which precludes the unity of the demands that are made on the candidates for academic degrees and titles, in the USSR the centralization of this system makes it possible not only to formulate concisely the common demands on seekers of degrees, but also to develop the most efficient procedure of the defense of dissertations and the conferring of academic titles. Whereas in the indicated countries a significant number of types of degrees exists (bachelor, master, doctor of philosophy, and other degrees), in the USSR along with the higher education diploma two academic degrees—candidate and doctor of sciences—exists.

The existence of two such degrees—candidate and doctor of sciences—seems entirely justified. Based on the made demands, these academic degrees testify to specific levels of the scientific maturity and scientific skill of their holders.

As a whole the changes and additions have the aim to increase to a higher level the demands on the skill of people, who aspire to academic degrees and academic titles, to eliminate from the certification procedure petty regulation and everything, which creates unjustified difficulties when submitting dissertations for defense and lengthens the time of their examination, and to increase the influence of certification on the acceleration of scientific and technical progress.

This year the regular election, as is customary to say among scientists, to the Large Academy—the highest scientific institution of the country—will be held in conformity with the Charter of the USSR Academy of Sciences for the vacancies that are opening up. In essence, such an election, which takes place no less often that once every three years, is a kind of certification, but of a higher level. I would like to express the wish that the election campaign and the election itself would also take place under the banner of the broadening of democracy and—what I would especially like to emphasize—extensive glasnost in the coverage of the scientific services of the candidates for the lofty title of member of the USSR Academy of Sciences.

S&T Cadre Certification Process Criticized

907A0117A Leningrad LENINGRADSKAYA PRAVDA in Russian 21 Dec 89 p 1

[Article by V. Glukhov, professor of Leningrad Polytechnical Institute: "References for a Professor, or Once Again on Bureaucracy in Science"]

[Text] Probably no one will dispute the idea that any state procedure should be economically efficient. However, it is not that easy to find confirmation of this idea in our reality. For example, the strict centralized system

of the certification of instructors of higher educational institutions, which formed in the 1950's, long ago lost all meaning. The simple enumeration of all the stages of this bureaucratic procedure is capable of killing in a novice scientist the desire to undertake a dissertation.

Judge for yourself. After defending a dissertation for the academic degree of candidate or doctor of sciences and receiving in 10-12 months confirmation from the Higher Certification Commission, you can only aspire to a new position. In order to come into legal rights with the corresponding wage, the candidate should go through a three-stage election procedure: in the chair, faculty, and scientific council of the higher educational institution. Further it is necessary to prepare and send to the USSR State Committee for Public Education 12 references, of which two to three reflect at least somehow the professional and scientific level of the competitor. The others should testify to his reliability and ideological and moral qualities. In all three to four years are spent on all this. And, finally, you receive official confirmation of the decision...which your colleagues at the higher educational institution made.

This procedure is absurd not only because it takes lots of time and robs one's health, but also because it is not capable of separating the grain from the chaff, good dissertations from ones that are far-fetched and no one needs. By way of proof I will explain my idea.

About 15,000 representations are examined annually in the State Committee for Public Education. There are 1,000-1,500 cases per monthly meeting of the collegium of this organ. Is it practicable given such a distribution to evaluate the professional qualities of competitors and the scientific significance of a dissertation? The staff of the certification department, which consists of several technical employees, can find only a formal mistake with regard to a specific set of regulations or check the form of a document. Time and different skills of those who work there are needed in order to get to the heart of the problem.

In recent times a number of authoritative scientists of the country have proposed quite a number of methods to change the obsolete, ineffective system of certification. One of them consists in granting major higher educational institutions the right to award independently the academic degrees of candidate and doctor of sciences. This idea was embodied in Order No 108 of 15 February 1989 of the State Committee for Public Education. In all 21 higher educational institutions (including three of Leningrad) received "the right to make decisions which are connected with the conferring of the academic titles of docent and professor." The State Committee for Public Education retained only the right to monitor the activity of scientific councils.

However, the joy of those, who had freed themselves from the useless tutelage of the certification department, was premature. Having carefully read the lines of this order, I and my colleagues discovered that the procedure of the interrelations of scientific councils with the certification department was not specified. The clarifications, which we received at the State Committee for Public Education, to which representatives of the leading higher educational institutions of the country were invited, to put it mildly, evoked only amazement. Not trusting any more the spoken word, we sent a collective letter to the leadership of the State Committee, in which we requested that the rights granted to us be confirmed in writing.

A response was not long in coming. New Order No 555 of 5 July of this year and the letter of instruction, which followed it, took from us "the right to make decisions" and replaced it with "the right of final examination." This minor amendment, in essence, returned everything to where it had started.

What objective reasons forced the superior organ to repeal so quickly its own decision? Had the quality of the works, which were submitted by candidates for an academic degree, perhaps decreased sharply? Hardly. Because it is impossible in 4.5 months to see the real consequences, let alone to evaluate them. So why, after taking a step forward, did the State Committee for Public Education so hastily take two steps backwards?

The reason, in my opinion, is quite clear: it is the fear to give up if only in part its rights and power. Even if this power is a burden on the shoulders of subordinate higher educational institutions, if for a long time now it has been impeding the development of such an important sphere of public education as the training of highly skilled personnel. Who will undertake to calculate how many talented scientists "got stuck" at the rank of instructors without a degree only because they did not have the strength and health to break through bureaucratic obstacles which no one needs! And how many untalented people with dissertations, which were written at the level of undergraduate theses, has this system quietly let pass? Is it really necessary to this day to prove to someone that such higher educational institutions as, for example, our Polytechnical Institute, where prominent scientists, who are well known for their works not only in the country, but also abroad, work, can evaluate entirely objectively and properly the scientific services of their colleagues?

Today this problem is especially urgent in connection with the fact that higher educational institutions have begun the drafting of new charters, which are aimed at the broadening of the democratic rights of collectives and the increase of the quality of the training of engineers and science teachers. I know that such scientific firms as Moscow and Leningrad State Universities have already included in the draft of their charters a clause on the change of the procedure of the certification of teaching personnel. That is, they have transferred the right to confer the titles of docent and professor to their scientific councils.

I believe that if the other higher educational institutions follow this example, the State Committee for Public Education will be forced to revise the established system and to return if only to the position of its February order.

Computer Expert Urges Economic Levers To Spur Automation

907A0107A Moscow IZVESTIYA in Russian
23 Jan 90 p 3

[Interview with Academician Yuriy Vasilyevich Gulyayev, director of the Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, USSR people's deputy, and chairman of the Subcommission for Communications and Information Science of the Commission for Questions of Transportation, Communications, and Information Science of the Soviet of the Union of the USSR Supreme Soviet, by Kim Smirnov, under the rubric "Point of View": "Horsepower for the Computer"; date and place not given]

[Text] **IZVESTIYA:** Yuriy Vasilyevich! The article of Academician A. Aleksandrov, then president of the USSR Academy of Sciences, "The Task to the End of the Century," appeared in IZVESTIYA six years ago. Its point: If in the next few years we do not take resolute steps on informatization, we will fall hopelessly behind in both economic and intellectual development.

The "next few years" have passed. What do we have, besides the Information Science, Computer Technology, and Automation Department, which was established at the Academy of Sciences, new institutes, and new academicians and corresponding members? The influence of information science on everyday life of the country is, as before, meager.

Yu. V. Gulyayev: Today everyone knows the historical anecdote about the fact that in our country they called cybernetics "the whore of capitalism." But not everyone remembers that in the development of the first generations of computers our Academy of Sciences and our scientists, particularly the school of Academician Lebedev, were in the front positions. The "old lady," the BESM-6, which originated in those years, still now, although computer hardware has already left it several generations behind, is working rather well, serving science. But then this scientific direction left the Academy of Sciences for ministries and, unfortunately, took the path of the compilation of foreign lines of development.

Let us face the truth. In the level of informatization we categorically lag behind the developed and even developing countries. The gap, in spite of the steps being taken, for the present is not decreasing. Specifically to what will the continuation of stagnation in this area lead and is it already leading? First of all, the low level of the present computer supply of science is decreasing the quality and efficiency of research. And not only applied, but also basic research.

Computerization can speed up by hundreds and thousands of fold progress in the most different areas of knowledge. Its lack affects both science itself and physical production which used it, where as a result of this obsolete, materials-consuming, ecologically harmful technologies are taking root and the structural reorganization of the national economy and the changeover to science-intensive works are meeting with obstacles.

Informatization is proceeding in our country at an inadequate pace. And, of course, we are investing insufficient assets in it. The United States, Japan, and the states of Western Europe, Southeast Asia, and South America are already today investing more assets in information science than in power engineering and the raw material and processing sectors. Which also determines the fast pace of development of these countries. Thus far we will simply not make up our mind to change radically the ratio of the investments in traditional and the latest sectors. This change is not yet occurring even in our consciousness.

If we do not find a means to rush ahead, to the boundaries of the world level in matters of informatization, we are doomed to be always trying to catch up.

IZVESTIYA: But is the such a means, which is sufficiently simple? And if there is, why has no one had the sense to take advantage of it?

Yu. V. Gulyayev: A means exists. It is very simple: buy abroad all the computers we need. But thus far no one has had the sense to take advantage of this because, first, for the present they still are not selling us computers. And, second, the state does not have now such money. According to several expert estimates, about 1 trillion rubles would be needed for us to properly advance informatization. Over 20 years, and not all at once. And that it is very difficult to find them. For the country should simultaneously fulfill the Food and Energy Programs.

There is another, more practicable means—the possibility of self-development. Japan, for example, is taking this route.

There enterprises and firms are taking upon themselves the bulk of the spending on the development of the informatization of society. Moreover, often small, mobile enterprises and firms. The competitive struggle is forcing them literally to hunt for scientific innovations. This means, although we and the Japanese are very different from each other, is also acceptable for us, if we want to fill the computer vacuum in a natural, self-organizing manner, and not by administrative command "compulsion to introduction."

The Supreme Soviet and the Congress of USSR People's Deputies can, incidentally, also regulate the situation by reducing taxes in those areas, in which it is first of all necessary to develop information science. The Japanese Diet is acting that way. But the correct tax policy is an economic, not administrative, lever.

It is natural, however, that state investments should ensure the computerization of social spheres (education, medicine, ecology). It is also natural that much capital will have to be invested in the element base of computer

hardware, in microelectronics, and in the development of high advanced technologies.

I will explain the situation with a quite rough, but, in my opinion, correct analogy: the developed countries made long ago their own "chess boards" and now are devoting the basic forces and assets to the "play" (and there are an infinite number of "games" here). We should participate in the "play" and at the same time make our own "board." For the sake of fairness I will note: the investments in the development of microelectronics in recent years have been increased. And one must not in any way reduce this pace.

IZVESTIYA: Thus, on the one hand, there is the system of competing firms—the users of the scientific product. But what about on the other hand? Is there the monopoly on this product on the part of the same information science department of the Academy of Sciences or head departmental institutes? Scientific monopolism is no less to blame for our stagnation than departmental monopolism. Is it not so difficult to develop a broad, "many-colored" spectrum in industry because, as before, it is absent in science?

Yu. V. Gulyayev: The academy has taken serious antimonopoly steps. It has changed over to a system of grants and competitions, when projects, which have gotten through the competition and evaluation, are financed.

IZVESTIYA: But who are the judges?

Yu. V. Gulyayev: The most prominent specialists in the directions in question.

IZVESTIYA: Our faith in the computer, it seems, is acquiring a certain religious mystical nature. They say, we will put it at every workplace, in every apartment, in every school. And everything will immediately change magically. Including man himself. But will the computerized world change man that automatically, as soon as the complete saturation of the computer pool occurs and a full-fledged software industry emerges?

Yu. V. Gulyayev: This is a most profound misconception! To teach someone to work with a computer is the simplest thing in this story. To get ready to live in the new information-oriented world means to reform in earnest both economic, social, and scientific educational structures and the very thinking of man—to make him receptive to the multivariant, multicolored nature of the three-dimensional world, not the flat, simple world.

Now the data concerning that fact that in the indexes of the intellectual level and in educational qualifications we have slipped from the first places in the world to the thirteenth or else fifteenth places, are being repeated from all rostrums. But this testifies by no means to our lack of talent: the Soviet state, as before, is incredibly rich in talented people. This testifies that we are squandering our intellectual wealth in an untalented manner. Precisely because we are changing over with difficulty, just barely to new methods, to new standards of thinking, training, and the making of state decisions and are not creating a climate of special favorable treatment for creative people and creative solutions. Precisely this first of all is throwing us back.

Let us look at how they are campaigning in our country for computerization. They say that it increases labor productivity. And they are even calculating how many additional horsepower it gives us. As if they are dealing with the steam engine of Polzunov or Watt. But it is a matter, after all, of a phenomenon which is incomparable to anything in the past—the unprecedented increase of the intellectual power of the individual, society, and mankind. And this will affect everything: the speeding up and effectiveness of scientific research, the management decisions being made, the training of specialists, and labor productivity.

It is not horsepower that adds to human powers. During the time, which has been allotted a person by fate, he can live two or three full-blooded lives.

Information science is becoming a force which advances progress not only in science itself and in the economy, but also in social structures.

Throughout history the democratic forms of government, starting with the Roman forum and the Novogorod veche, have been closely interconnected with the methods of securing, storing, and exchanging information. But never before was this connection between information and politics as close and as obvious as it is today.

I will take the risk to assert that in the most vital undertakings of perestroyka for the people (the changeover of enterprises to self-management and cost recovery, the transfer of regional power to the soviets locally and in the country as a whole, the formation of a law-governed state, and so on) we will advance as far as we are able to advance the informatization of society.

All dictatorial regimes strove to rule by relying on the concealment of information. But this is an illusion. The truth always revealed itself and often was the force that shattered despotism. Socialist society, in which the most different personal and group interests, not by suppressing, but by enriching each other, can interact, all the more cannot live without an open information system. Here, given the enormous diversity, only a fundamentally new information system, which does not need either a "telephone law" or administrative thought control, can ensure self-regulation and self-coordination. A system that is designed for the full use of the entire body of information.

Such ideas have been incorporated in the concept of the informatization of our society, which the USSR Academy of Sciences, the State Committee for Computer Technology, and a number of academic and sectorial institutes have now formulated. Our parliamentary

commission recently adopted it. We will submit it to the Supreme Soviet and, apparently, to the Congress of USSR People's Deputies.

It will be suggested to the Council of Ministers to develop on its basis a state program of the informatization of the country and to formulate its economic mechanisms, the key problems, and the priorities. This program should be of an open, not directive, nature and include research and development on the entire life cycle of man and society. Particular attention is being devoted to the informatization of the social sphere. It would be a good idea to discuss this future document nationally.

IZVESTIYA: The document does not yet exist. But a "depth charge" had already been "laid" under it. People are tired of long-term programs and are posing the question concretely: When will we see affordable personal computers on shelves, at home, at schools? And indeed, is it possible, instead of designing supercomputers, to begin with a popular, school computer?

Yu. V. Gulyayev: But why, then, not begin with a tomograph? There is no a single, but a large number of links, after taking hold of each of which it is possible to pull out the entire chain. And medicine is the foremost of them. It is even not necessary to explain why. In the prevention of diseases, in diagnosis, in the therapeutic direction of treatment, and in surgical interventions the methods of X-ray, nuclear magnetic, positron emission, and ultrasonic tomography, which give an unprecedentedly complete and accurate picture of all the processes and all the changes in the human body, are succeeding intuition and experience. These methods are based exclusively on computerization.

The new methods of early diagnosis, which are being developed today at our institute (in close cooperation with medical personnel) and are based on the measurement of the physical fields and emissions of the human body, would also be impossible without computers. In reality, precisely computers not only process an enormous amount of changing data, but also give a diagnosis.

I will name another link of computerization, which also pulls out "the entire chain." Ecology. Any ecology specialist will explain to you that without monitoring, that is, the constant and complete tracking of the state of the biosphere, the idea of its saving remains only a rose-colored, child's dream. Monitoring is impossible without means of global communications and without the computer processing of multiple-discipline, multiple-factor information.

And what about the play with mathematical models of both future ecological catastrophes and the expensive plans of their prevention? For this, incidentally, supercomputers are needed. Here is your answer to the question: What kinds of computers are required first of all? First of all both personal computers and supercomputers. Development should proceed simultaneously along a broad front.

And when they say to me that it is necessary to begin with a school or even a "kindergarten" computer, or else later on it will be too late, I agree. But here all the same one will have to think not only about a school computer, but also about the restructuring of the entire multistage system of education.

In developed countries for a youngster from early childhood the computer is a favorite toy. He, having barely stood on his own feet, is already getting used to this new, future world, to information-oriented society. In our country the low level of supply of all forms and levels of education with elementary equipment already is also having a very serious effect on the training of specialists.

The metastases of this "cancerous tumor"—poor knowledge, low occupational responsibility, and, finally, sheer ignorance—are coming to light in all areas of our life. Hence physicians who do not know how to treat; teachers who do not know how to teach; managers who are incapable of farsighted decisions.

IZVESTIYA: When the country was under the nuclear threat, all the intellectual and material forces were gathered together and a counterargument was found. Do we perhaps not understand today that we are under a no less terrible threat—an AIDS of ignorance, a loss of immunity to it?

Yu. V. Gulyayev: We are beginning, of course, to understand. But in contrast to real AIDS an antidote has already been found—the informatization of the entire country. This is a most important condition of scientific and technical progress and the development of our society, a condition so that we would not fall on the move from the train of world civilization, which is constantly speeding up its movement.

Restrictions on Publication of S&T Information Defended

907A0087A Moscow SOVETSKAYA KULTURA in Russian 23 Dec 89 p 6

[Article by Doctor of Technical Sciences Professor A. Lyutovich, chairman of an expert commission of the Institute of Electronics of the Uzbek SSR Academy of Sciences (Tashkent): "Glasnost and Secrecy. How Are They To Be Combined?"]

[Text] The Universal Declaration of Human Rights and other international agreements defend the right to the free exchange of information and to freedom of the statement of one's convictions. The emancipation of the press in our country during the period of perestroyka has already played an expectionally important role and will do much more in the future.

However, at all times and in all developed countries there have been and will be restrictions on the publication of information which is a state, military, commercial, and scientific and technical secret. The wisdom of the correct choice is, without restricting to any extent the

freedom of the press, not to allow the divulgence of the indicated information in the mass media or other forms of publications.

Let us examine a typical example which concerns scientific, technical, and commercial information—How is one to observe a reasonable balance of advertising and secrecy? A new method of the electroerosion broaching of deep holes in conducting materials, which is of great interest for machine building, was invented at the Institute of Electronics of the Uzbek SSR Academy of Sciences. E.T. Abdukarimov, author of the invention, and L.Yu. Fedorova, manager of the patent service, carefully developed a detailed advertising prospectus and patented the method in developed countries, for example, such ones as the United States, the FRG, Great Britain, Japan, Switzerland, Italy, and France. However, the technology ("know-how") was keep thoroughly secret, and even a hint on how the result is achieved was not published.

As a result of the keen interest in this original development, on the one hand, and the impossibility of getting information about it, on the other, a Swiss firm concluded with the institute through the mediation of the Litsentorg All-Union Association a commercial agreement, as a result of which the institute earned freely convertible currency and opened an account at the USSR Bank for Foreign Economic Relations. If the author had agreed to the publication of a scientific article (as often happens) and if the system of the protection of secrets in the press had not come into action, the capitalist firm would have obtained all this information free, while we would merely have incurred material losses, that is, would have been duped.

Under the conditions of expanding international contacts it is very important to present in a fitting manner our achievements in the field of science and culture and to show that we are not such a "bast shoe" country and that we have original ideas. But if for their implementation it is necessary to attract western capital, equipment, and experience in the organization of business and technology, it is necessary to agree boldly and resolutely to this on a mutually advantageous basis, while carefully guarding our secrets. It is necessary to publish the results of our achievements more extensively in international scientific journals, ensuring priority, but without revealing in so doing the essence of inventions.

All these new directions of activity will require the more flexible and creative work of expert commissions and local organs of the Main Administration for Safeguarding State Secrets in the Press. This matter is very delicate. On the one hand, out of formal considerations or through incompetence it is easy to set up unnecessary obstacles and to stifle the natural need of scientific personnel for self-expression and the approval of their achievements. On the other hand, it is possible to divulge in a thoughtless and improvident manner information which constitutes a commercial or technological secret.

Of course, the rapidly changing real situation requires the constant revision of what is a secret. The organs of the USSR Main Administration for Safeguarding State Secrets in the Press in the past two to three years have partially reevaluated the themes, which were previously banned from publication in the open press, and this work is continuing. Cases of what are called departmental "secrets," which are nothing other than a form of the concealment of our own lag in the given area, are well known. Apparently, the complete reevaluation of the restrictions for the open press is necessary no less often than once every two years.

State Committee on Inventions Attacked

907A0083A Moscow
MATERIALNO-TEKHNICHESKOYE
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[Article by Deputy Chairman of the State Committee for Inventions and Discoveries Yu. Pugachev under the rubric "Economical Managers. The Strategy and Tactics of Invention": "The Reverse Side of the Management Boom"]

[Text] The Baltic Patent Conference, as it is called, which convenes once every two years and at which the urgent problems of invention, patent, and licensing work are discussed, was held in November 1988 in Riga. The most qualified patent affairs experts participated in it.

At the conference the activity of the State Committee for Inventions and Discoveries and its subdivisions: the All-Union Scientific Research Institute of State Patent Examination (VNIIGPE) and the Poisk Scientific Production Association, was sharply criticized. Many speakers emphasized, and this found reflection in the adopted resolutions, that in inventive activity as a whole and in the activity of the State Committee for Inventions and Discoveries no perestroyka is being sensed and that glasnost and democracy have not touched it. They spoke about the fact that the committee performs it works in isolation of the patent community, important documents, such as the Law on Inventive Activity in the USSR and others, are prepared secretly, in the quiet of offices, and then already prepared recommendations, explanations, and methods are issued, thereby preserving the former bureaucratic command style of work.

The exchange of opinions showed that the practice, when ideas clash, various points of view are heard, and after discussion some documents, which are of practical importance, are adopted, has not become the norm. It hurt me, one of the executives of the committee, to hear such harsh opinions. But, I assure you, everything that was said reflected the true state of affairs. And, indeed, the committee is not being restructured and is working in the former style. It is sad, but it has to be admitted: the State Committee for Inventions and Discoveries has disappeared as the central organ of the supervision of inventing and rationalization work. In recent years the prestige of the committee has declined sharply. Why? One of the reasons is the lack of genuine collectivism in management. The bureaucratic command, paper-shuffling style of work has also been retained to this day. Arrogance and the belief in exceptionality and competence gave rise to a noncritical attitude toward the state of affairs. Unjustified contentment sticks out, but a self-critical analysis of the perception of realistic reproofs and of serious criticism, which was repeatedly heard, is lacking.

Even the harsh appraisal, which was given in the report of the CPSU Central Committee at the 27th congress, did not affect the activity of the State Committee for Inventions and Discoveries, it was simply ignored. First Deputy Chairman L.Ye. Komarov, it is true, wrote a lengthy explanatory memorandum and sent it to the members of the collegium of the committee, but it was not discussed by anyone. The committee chairman objected to this.

Only after 3.5 months did they timidly mention at one of the meetings the criticism at the congress. The leadership of the committee reacted in the spirit of the times of stagnation to the publication in SOTSIALISTICHESKAYA INDUSTRIYA of the article of Control Council Chairman A.F. Krytnov. The author not only was persecuted a long time, but was also even forced to quit. Such examples are not isolated.

Criticism of the fact that the draft of the new Law on Inventive Activity in the USSR is being prepared in the quiet of offices of our department, has been repeatedly voiced in the press. The community was upset and worried quite justifiably. But meanwhile from the very start of the preparation of this document the clear orientation of the leader of the committee was not to allow to participate in the preparation of the law the patent community, and not only it, but also specialists of the very system of the State Committee for Inventions and Discoveries. A narrow group headed by Deputy Chairman N.A. Mironov, which secretly began the preparation of the draft, was set up.

In essence the chiefs of the departments, the members of the collegium, and the leading specialists of the committee were kept away from the drafting of the provisions of the Law. No one succeeded in convincing the leader of the State Committee for Inventions and Discoveries of the erroneousness of the line adopted by him: neither the decision of the party committee nor the criticism at conferences and meetings helped. He stood his ground with enviable tenacity. I am not talking about the fact that it was necessary to go to the regions of the country, to meet with inventors, and to lister to their opinion on the urgent problems of invention. Our executives for some reason feared this like fire. And they dragged out the work so much that they assigned the finishing up of the document to another group headed by I.M. Bortnik, first deputy chairman of the USSR State Committee for Science and Technology.

And even when the draft of the law was twice discussed in a democratic manner at a meeting of the USSR Council of Ministers (unlike the committee), when the working group headed by I.M. Bortnik met with the aktiv at large, and when the draft of the Law, which had been extensively discussed in the country, for the most part was approved, the leadership of the committee in no way wants to acknowledge its mistakes. And this, of course, is giving rise to new mistakes. A lump of snow, which has been thrown in the mountains, as is known, is capable of causing an avalanche.

In June 9187 for the purposes of better organization the USSR State Committee for Inventions and Discoveries

was transformed into the State Committee for Inventions and Discoveries attached to the USSR State Committee for Science and Technology. In connection with this the change of the structure of the committee and a 36-percent reduction of the central staff were envisaged.

It would seem that this determines its qualitatively new functions. It was necessary when forming the different structure to take most completely into account the collective opinion—of the collegium, the party committee, and the executives of the departments. None of this happened. The work was kept in strictest secret even from the deputy chairmen. The structure was prepared secretly, once again behind closed doors by Chairman of the State Committee for Inventions and Discoveries I.S. Nayashkov and L.Ye. Komarov. The collective lived through disturbing days. No one knew what was going on and what was being proposed.

The party committee specifically demanded of I.S. Nayashkov that he explain how the preparation of the new structure was going, whether it would be known to the collective, and for what reassuring promises had been given. But this was deliberate, premeditated deceit. There was no discussion of the plan of the structure at the session of the party committee, in the collegium, and especially at the party meeting and in the collective.

Another thing happened. A regular party meeting was held. Many speakers asked with alarm, why were they not being familiarized with the plan of the structure? Why are the executives misleading people? Who but the collective is to judge what the structure should be like, why is the opinion of communists being ignored? Then Committee Chairman I.S. Nayashkov took the floor and attempted to reassure those who had gathered; the structure, he said, is still being elaborated, when it is ready, a collective discussion will also take place. But at that time—and the speaker was well aware of this—the structure was to be signed by Deputy Chairman of the Council of Ministers B.L. Tolstykh. The next day they signed it. And such a thing proved possible during the period of perestroyka.

But what did the new structure of the committee yield? Why was it concealed so stubbornly from the collective? The answer is quite clear: it legalized the bureaucratic command method and style of work of the committee. The staff was actually reduced by 36 percent. But the number of management personnel not only was not reduced, but, on the contrary, was increased. Of course, their wage was increased.

By way of proof, let us turn to the facts. Before "perestroyka" the department of information and automated systems existed in the committee. A chief, two deputies. Now the consolidated department of information and automated management systems has taken up its position. But in it there are three subdepartments with their own chiefs and deputies. The basic function is to direct the work of the Poisk Scientific Production Association, its subordinate organization. But is such a superstructure needed, if we are talking about increasing independence not for effect, but for the sake of business?

Previously the department of examination and the department of discoveries existed. Now the consolidated department of examination has taken up its position. But in it there are again three subdepartments. And again their chiefs, deputies, and so forth. There was the department of trade marks and production prototypes consisting of seven people. Now two departments have taken up their positions: the department of production prototypes and the department of trade marks made up of four people each with their own chiefs and deputies. There was the scientific and technical department, which absolutely did not show its worth, now the department of technical and economic analysis with an increased staff with two subdepartments, of course, with their own chiefs has taken up its position.

There was the department of personnel and educational institutions consisting of six people. Now there are the department of personnel and also the department for personnel training made up of three people each with their own chiefs. All this led to the increase of the management team by seven people.

Such a structure does not provide efficiency in work, dynamicness, or an increase of responsibility.

A question arises. At present our committee operates under the USSR State Committee for Science and Technology. Its functional framework has narrowed. Does the chairman now need to have four deputies? And previously this was noticeable, but now it is obvious that more than two deputies are not required. Let us see with what, for example, the first deputy chairman deals. He presides over only on direction—examination. But a single institution—the All-Union Scientific Research Institute of State Patent Examination—performs all the work on the making of a scientific and technical examination in the country. In all 1,300 experienced experts, but a total of 2,200 people work at it. A most experienced worker—Doctor of Sciences V.I. Blinnikov—is in charged of it. He has seven deputies and a harmoniously, efficiently working collective. Is it also necessary to have in the central staff a special department for giving order to this institute plus a special deputy chairman of the committee?

The management of the institute once attempted to submit a proposal on the radical change of the process of examination, but in so doing they disobeyed their patron L.Ye. Komarov. As a result such a dressing down took place that hereinafter initiative was punished by him. It turns out that everyone should walk along the floor board, which they will indicate to him from above.

It is necessary to resolutely free oneself from the giving of orders to subordinate organizations and to promote and aid the increase of independence and responsibility. Then the load will also decrease sharply. Although it is now also small. Not by chance has the deputy chairman,

who presides over examination, for his personal satisfaction headed for a long time a chair at the Moscow Evening Machine Building Institute, which does not have anything to do directly with invention.

Or, for example, why have in the committee given the new structure a special deputy chairman, who presides over questions of just invention law given the existence of a special large department which is headed by a member of the collegium? Is the amount of work great? Are laws and enforceable enactments on invention really prepared every month or even every year? And if they are, not only by the personnel of this department. And once again it is not by chance that this deputy heads a chair at the institute for the training of patent personnel (the Central Institute for the Training of Patent Personnel) of our system. This is how it turns out: half a day in the committee, half a day at the Central Institute for the Training of Patent Personnel. Hence the unique way of being busy—there is enough time for Moscow, for trips abroad, but not enough to go to oblasts, krays, and republics.

Or why have a special deputy chairman of the committee for questions of information? For the matter reduces in practice to the supervision, rather, to the management of just one subdivision that is subordinate to the committee—the Poisk Scientific Production Association, in which, incidentally, there is also a very extensive management staff: the director, five deputies, the chiefs of departments, and so on. Moreover, in the central staff of the committee there is the special department of information headed by a member of the collegium. Are there not a few too many managers? For about a year now the indicated position of deputy chairman of the committee has been vacant. But none of the other deputies nor the chairman himself have felt at all any additional pressure in work.

I am absolutely certain that our central staff is unwieldy, is imperfect in its structure, and, therefore, is not of the necessary benefit for the development of invention in the country.

The evaluation of the work of the committee on foreign relations also requires serious analysis. Very substantial amounts of foreign currency assets are being spent for these purposes. Every year the executives of the committee and many personnel of the central staff and subordinate organizations very willingly leave on foreign trips. This year alone in six months the first deputy chairman of the committee was on a foreign business trip on six occasions and spent nearly three months abroad. Deputy Chairman Mironov went abroad on three occasions for nearly a month. But none of them for a number of years has in practice gone to the regions of our country, as if there is nothing to do there—there are no questions. All this is strange.

A large number of conferences, meetings, and seminars are being held. While as a result there are bulky volumes.... There is almost no practical benefit or it is very close to zero. Perhaps, the only useful thing, which comes from this entire foreign travel boom, is the organization of exhibitions of Soviet inventions in various countries. The rest is the semblance of work.

It seems that the USSR State Committee for Science and Technology, to which the responsibility for inventing and rationalizing work in the country has now been assigned, should examine scrupulously the state of affairs in the State Committee for Inventions and Discoveries and should see to it that it would become a truly effective organ, would use the allocated assets efficiently, and would provide the necessary return from each specialist. Then it will become much easier for our inventors, efficiency experts, and the entire creative technical community to breathe. And, hence, the national economy of the country will receive a powerful stimulus for development, highly efficient economic levers of the saving of resources and the acceleration of scientific and technical progress will be put to use.

Revised Draft of New Patent Law To Be Published

907A0101A Moscow NTR TRIBUNA in Russian No 23-24, 15 Dec 89 p 2

[Article by L. Nikolayev: "On the Draft Once Again"]

[Text] The consideration of the draft law "On Inventive Activity in the USSR," which was submitted by the USSR Government, took place on 18 November in the USSR Supreme Soviet at a meeting of the Committee for Science, Public Education, Culture, and Training with the participation of members of the Committee for Questions of Legislation, Legality, and Law and Order, the Commission for Questions of the Development of Industry, Power Engineering, Engineering, and Technology, as well as the Commission for Questions of Transportation, Communications, and Information Science.

Deputy V.S. Bolbasov, chairman of the joint deputy preparatory commission, delivered the report on the draft law. He noted that in the process of the national discussion of the draft law more than 10,000 suggestions and remarks, a portion of which were taken into account, were received. Changes were made in 49 of the 63 articles of the draft of the Law.

During the subsequent analysis of the draft law by the committees and commissions of the USSR Supreme Soviet jointly with the State Committee for Inventions and Discoveries and the All-Union Society of Inventors and Efficiency Experts and with the enlistment of scientists and specialists 25 articles of the draft of the Law were supplemented with a number of provisions, which were aimed at the strengthening of the legal and economic rights of inventors and patent holders. The suggestions of USSR people's deputies, the analysis of the

letters of workers, and 15 versions of draft laws, which were received by the committees and commissions from individual organizations and citizens, served as the basis for the formulation of these supplements and specifications.

In the opinion of the committees and commissions, as a result of the performed work a new draft of the Law "On Invention in the USSR" had actually been prepared.

Taking into account the importance for the economy of the country of the USSR Law "On Invention in the USSR," the committees and commissions consider it necessary to expedite its passage. At the same time, owing to the substantial differences of the submitted draft law from the previously published one, they came to the conclusion of the advisability of its publication in the press.

It was decided to address this formulation of the question to the Presidium of the USSR Supreme Soviet.

Commentary

Thus, "has the ice broken?"

It would seem that it has. A step has been taken...toward another, even more national discussion (the first one, as is known, has continued for a little more than a year now).

Did the law become better?

Undoubtedly. Will it be better after the next discussion? Most likely. Just one thing is bad—time does not wait. Let us recall in this connection the "maxim" of the great American Mark Twain, which was already cited earlier (see the article "A Sudden Halt," NTR, No 14, 1989), true, in the interpretation of the author:

"...a country without a patent bureau and without firm laws, which protect the rights of inventors, is like a crayfish, which can move only sideways or backwards."

Bolbasov Comments on Revised Draft of New Patent Law

907A0101B Moscow RABOCHAYA TRIBUNA in Russian 6 Jan 90 p 6

[Interview with Vladimir Sergeyevich Bolbasov, member of the USSR Supreme Soviet and Honored Inventor of the Belorussian SSR, by V. Krasnovskiy, under the rubric "A Topical Interview" (Moscow): "Who Will Defend the Inventor"; date not given; first two paragraphs are RABOCHAYA TRIBUNA introduction]

[Text] In our readers' mail, which is gaining a voice, the question of the fate of the Law on Inventive Activity in the USSR has begun to be heard. A year ago its draft was published, inventors sent in their remarks, but at the sessions of the USSR Supreme Soviet not a word was said about it. "What is going on?" readers ask. "Are they again working secretly on the important law, without informing the public?"

We turned for explanations to Vladimir Sergeyevich Bolbasov, a member of the USSR Supreme Soviet and Honored Inventor of the Belorussian SSR.

V. S. Bolbasov: The suggestions about secrecy in the work on the draft are groundless. Following its publication more than 10,000 suggestions and remarks were received. All of them were carefully examined and analyzed. Incidentally, the name of the law was changed, now it is called as follows: "The Law on Invention in the USSR."

RABOCHAYA TRIBUNA: And still, you will agree, Vladimir Sergeyevich, that following such an eventful campaign on the discussion of the law they literally forgot it.

V. S. Bolbasov: This is not so. A deputy commission for the modification of the draft was formed within the Committee of the USSR Supreme Soviet for Science, Public Education, Culture, and Training. I also represent the opinion of this commission. It must be said that some thorough work had to be done. Of the 63 paragraphs of the first draft law 49 underwent substantial changes: they were refined and became more concise and goal-oriented. And all the work was performed with the enlistment of an enormous number of scientists and specialists from various sectors of the national economy. For it was necessary to take into account not only remarks and suggestions. There were examined...16 alternative versions of the law! Not just one all-union conference was required for this. Therefore, without exaggerating, I will say that in many respects a new law will be submitted to the session of the USSR Supreme Soviet.

RABOCHAYA TRIBUNA: By what is it distinguished from the published one?

V. S. Bolbasov: First of all by a clear orientation. Its chief goal is the protection of the interests of inventors. And, as the logical implementation of this concept, the rejecting of dual patent holding. For the question of the owner of a patent is one of the foundations of any patent legislation. Under the conditions of a market economy, and we are orienting the legislation precisely toward such an economy, an invention acquires the nature of an commodity only if it is the property of one person, who can dispose of it at his own discretion.

The deputy commission believes that this issue should be settled mainly in favor of the inventor. In our opinion, this conforms to the conditions of the economic mechanism that is being formed, as well as is in complete accord with advanced world practice.

RABOCHAYA TRIBUNA: Inventions are national wealth. The state should be vitally interested in its efficient assimilation. Until now enterprises, let us state

frankly, were indifferent to the use of inventions. Does the draft of the law provide for any changes in this respect?

V. S. Bolbasov: One of the main tasks of the draft law also is to ensure the reasonable combination of the interests of the authors themselves, enterprises, and the state. What does this mean in practice? First of all the creation of economic stimuli for enterprises in the assimilation of innovations. The new draft law provides for such benefits. For example, the profit or currency receipts from the use of inventions are left at the disposal of the enterprise for five years and are not taxed. It is clear how great the importance of this step is for the technical and social development of production collectives. Moreover, an enterprise, which uses an invention, can obtain bank credit on easy terms. The regional funds attached to the soviets of people's deputies, as well as the system of innovation banks, which it is proposed to establish for the financing of development that is performed at the level of inventions, will provide substantial economic assistance in the implementation of inventions.

RABOCHAYA TRIBUNA: Vladimir Sergeyevich, what reward is being earmarked for the inventor? For it is well known that according to the original idea he was offered not more than five percent of the profit that was derived from the use of his invention. Has this article been changed?

V. S. Bolbasov: Yes. At any rate: if the author has ceded his patent to an enterprise or the USSR State Fund of Inventions, he will receive 15 percent of the profit, and not in a lump sum, but over the entire term of effect of the patent.

RABOCHAYA TRIBUNA: So, this version of the law inspires optimism. But, what do you think, should the role of the State Committee for Inventions and Discoveries attached to the USSR State Committee for Science and Technology be changed after its approval?

V. S. Bolbasov: Of course. Under the more complex conditions this committee has to coordinate all the work in the area of invention, to ensure the reliable legal protection of inventions and the standard and data support of invention activity, and to train skilled personnel for its successful performance. Under the new conditions the status of the committee should be changed, for its status should also conform to the tasks facing it. Incidentally, in developed countries patent departments are some of the most prestigeous ones.

RABOCHAYA TRIBUNA: And a last question. When, all the same, will inventors get the new law?

V. S. Bolbasov: It is proposed in the near future to publish the new draft law in the press for rediscussion. While in the spring it will be submitted to a session of the USSR Supreme Soviet. And it remains merely to express the hope that along with other laws it will play an appreciable role in the economic revival of the country and will provide serious stimuli for the acceleration of scientific and technical progress.

Velikhov, Goldanskiy on Foreign Work, Study Programs

907A0098A Moscow NTR TRIBUNA in Russian
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[Interview with Vice President of the USSR Academy of Sciences Academician Yevgeniy Pavlovich Velikhov and Academician Vitaliy Iosifovich Goldanskiy, by NTR TRIBUNA correspondent F. Vlasov: "From a Declaration to a Law"; date and place not given; first two paragraphs are NTR TRIBUNA introduction]

[Text] The draft of the Law on the Going Abroad of Soviet Citizens was considered recently in the Supreme Soviet. How do things stand with scientists, will they be able to go abroad to work?

Our correspondent F. Vlasov addressed this question to the well-known Soviet scientists, Vice President of the USSR Academy of Sciences Academician Ye. Velikhov and Academician V. Goldanskiy.

NTR TRIBUNA: Yevgeniy Pavlovich, what can you say in response to our reader?

Ye. P. Velikhov: First of all that rather many Soviet scientists are already working abroad. For example, if you take the field closest to me—nuclear physics—Soviet specialists are participating in research of the famous Fermi Laboratory. Much work is under way in CERN [the European Council for Nuclear Research], and, although we are officially not members of this international organization, many Soviet atomic experts belonged to the international group that recently developed a very promising detector. Talks are now being conducted with the institutes of atomic energy and experimental and theoretical physics on the participation of their associates in the development of equipment for the new accelerator which is being built in Texas. It is easy to extend the number of such examples.

NTR TRIBUNA: Are they working on an individual basis or were they sent there by their organizations?

Ye. P. Velikhov: In this case I am talking about people who were sent. True, these business trips are quite long—two to five years—and they are usually paid for by the foreign partners. In short, the institutes here act first of all as "guarantors of the quality" of the sent specialists.

But it can also be different. We now have many talented young people, and it would be a mistake to think that our scientific organizations are capable of replacing the entire scientific world with them. Science always was and will be international, this is its normal state. I, for example, recently returned from Vancouver. A Frenchman, a Swiss, a Japanese, and a Chinese work in a laboratory of this Canadian city—why should our scientist also not work there?

Such examples exist. For example, one of my acquaintances for more than a year now has been a professor of a well-known American university. He works at peace. When he feels that it will be more interesting here for him, he will return. But he will return, most likely, a scientist of already a different, higher class than he left.

In the world there are centers of scientific thought and unique schools of scientists, which are recognized by everyone, and every capable specialist should have the opportunity to do some work at them.

If this is a young scientist, we expect that he will return and organize here his own school—it is necessary, of course, to create for him the necessary conditions. But if someone does not return, so what, these will all the same be people, who understand us well and whom we understand well.

NTR TRIBUNA: In short, are you for the broadest possible exchange of scientific personnel?

Ye. P. Velikhov: I am rather for sensible exchange. For the number of worthwhile vacancies in the world is not that large. But in those instances, when they offer our scientists, for example, a chair at a university or a laboratory at a recognized firm, it is a sin not to take advantage of this.

Moreover, the best thing would be for this process to be bilateral. Of course, we now have difficult conditions and not the best opportunities. But still I believe that among serious scientists there may be some who want to do some work at some of our laboratories. Scientists should work in different countries. Such rotation enriches them, and all formal obstacles should be gotten out of its way.

NTR TRIBUNA: Vitaliy Iosifovich, what do you think of the possibility of the free going abroad of scientists for work?

V. I. Goldanskiy: Scientists are the same people as any other citizens of the USSR. It is possible only to welcome the fact that the Universal Declaration of Human Rights, which was proclaimed by the UN General Assembly back in 1948, but for a long time was for us a secret behind seven seals, is finally extending its effect to our compatriots.

Article 13 of this declaration states:

1. Every person has the right to move freely and choose for himself a place of residence within every state.
2. Every person has the right to leave any country, including his own, and to return to his country.

In conformity with this article the USSR Council of Ministers submitted to our Supreme Soviet the draft of the USSR Law "On the Procedure of the Exiting From the USSR and the Entering of the USSR of USSR Citizens." It is clearly stated in it that foreign passports for exiting on personal business for a temporary stay or for permanent residence are issued on the basis of a personal application by organs of internal affairs. Here the state, naturally, does not take upon itself concern for the material support of citizens who have left—not

counting the small amount that can be exchanged upon leaving—and thereby the opportunity to earn a living by any, so the speak, "legal" means, including, of course, by scientific work, is implied for them.

NTR TRIBUNA: While supporting your assessment of the draft of the new law, I cannot all the same not ask—Do you not fear a serious outflow of scientific personnel after it takes effect?

V. I. Goldanskiy: Of course, I do. Many countries have already been faced with this phenomenon, which has received the name "brain drain." From world experience it is well known that it occurs for several reasons, but the main ones of them are the material living conditions of scientists, technical supply, which is inadequate for work of real value, the sociopolitical status of science, and the moral and psychological frame of mind of society with respect to it. And I should say that with regard to all these factors we have a very difficult situation.

If we take the material status, our scientists are the poorest in the world, in any case among the more or less developed countries. Moreover, with each year the situation is getting worse.

The wage rates of scientists have not been increased since 1946, and whereas then they were much higher than the average rates for the country, now they have in practice become equal. At the present rate of exchange 210 rubles a month is $400 a year. In the United States a university graduate usually receives a wage of $20,000 a year. Judge for yourself what the comparison of the named figures implies.

Active and extensive propaganda against the intelligentsia in general and the representatives of science in particular, which certain circles are conducting (the members of the old guard, the pseudoworkers, who were transformed long ago from creators of material wealth into spokesmen of these members, and many "engineers of human souls" rally here), is influencing the status of scientists in our country even more harmfully than material factors. The average wage of an associate of the USSR Academy of Sciences is 234 rubles, in our General and Technical Chemistry Department it is about 210 rubles. After studying 15 years, a scientific associate receives less than a trolleybus driver. Nevertheless, the myth of the "chic life" of the personnel of science is stubbornly being preserved, I would even say is being cultivated, in public opinion.

Also add to what has been said the fact that, so to speak, everyday poverty is being augmented here by professional poverty. The instrument, financial, material, and, in general, any supply of Soviet science lags far behind western supply. Imagine a scientist, who has formulated an interesting idea, but knows that for its verification he—due to the lack of instruments, materials, computing capacities, and others—will require several years. His colleague abroad can arrive at the same idea much later, but implements it much earlier!

NTR TRIBUNA: And what is it possible to do here?

V. I. Goldanskiy: First of all, not panic. It is necessary to understand that trips of scientists abroad for work are an absolutely normal process, which, moreover, is advantageous for the country, and there are not the slight grounds to hinder it. It is another thing that it is necessary in our own country to create such conditions so that our scientists, having done some work abroad and having broadened their experience, would willingly return, while western scientists would aspire to come here.

From this standpoint the awaited law on exiting should, so it seems to me, play not only an enormous general democratic, but also a significant organizational role. Now in our country the status of science is abominable, and the attitude toward it is abominable. And I hope very much that the new law will force our scientific, quasiscientific, and superscientific bureaucracy to learn, at last, to look at science as the greatest national property, the most valuable resource of the country, and one of the most important elements of domestic culture. Then all the questions, which we are discussing today, will settle themselves.

International Center for Science To Be Built in Moscow

907A0095A Moscow NTR TRIBUNA in Russian
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[Article by NTR TRIBUNA correspondent D. Vladimirov: "What the International Center of Science and Knowledge Will Be Like"; words in boldface as published]

[Text] A worthy, moreover, responsible site for the future Center has been chosen on the map of Moscow. The Arbat is two steps away, lanes, from the names of which the heart grieves: Malyy Kakovinskiy, Karmanitskiy, Voyevodina, Serebryanyy..., are half a step away. The old, nearly disappeared Moscow. Skryabin, Pushkin, and Tsvetayeva lived here. Each building is the history of the country, the history of culture.

And like a relay race there is the International Center of Science and Knowledge. I very much did not want the pathetic element, but the idea of the Center, I am convinced, is entirely worthy of the site of its materialization.

Today it is obvious that the most international and, therefore, the most powerful motive force of progress—**knowledge**—is the most valuable product of the activity of many. Knowledge moves both him, who possess it, and him, to whom it goes as a result of exchange, sale, and presentation as a gift in the end. It is a question of how to develop the most effective mechanism of the global and equivalent exchange of knowledge.

The All-Union Society for Knowledge proposed some time ago the idea of such a mechanism. It is a matter of establishing the Interznaniye International Association.

The main task of the association is to support the practical cooperation of scientists and specialists of different countries in the establishment of an international market of knowledge and to create creative conditions for the generators of new knowledge. NTR has repeatedly told about the goals and tasks of Interznaniye and has shown its already operating structures, particular the joint ventures with western firms, which were established under the aegis of the All-Union Society for Knowledge.

Today it is a matter of another thing—of the House for this association and of the peculiarities and the conditions, under which the members of this association will work.

They decided carefully and, I will repeat, responsibly what the Center is to be like. The competition between Workshop No 2 (the manager is D. Solopov) and Workshop No 9 (the manager is I. Pokrovskiy) of Mosproyekt-2 [the Administration for the Designing of Public Buildings and Structures of the Moscow City Soviet] went on for more than a year. The versions were discussed on four (!) occasions at meetings of the urban development council. Not simply the mockups were changed. The architects sought new approaches and principles, which would be worthy of the site and goal.

Finally the presidium of the urban development council of Glavmosarkhitektura approved the conceptual design of the International Center of Science and Knowledge, which was developed by the workshop of D. Solopov.

"In the old Russian legislation on urban development and architecture," Dmitriy Sergeyevich relates, "the following idea was, perhaps, most important—in case of construction 'to preserve the view' of nature, of the city. And in addition not to disturb your neighbor with your construction. And the following important idea was there—each new building influences the character of the city as a whole. Unfortunately, now there is no such legislation (we and Mongolia are the two countries, in which it has not been passed). And the strong-willed pressure, to which the absence of a law gave rise, has destroyed the style of cities. Perhaps, Moscow has suffered more than others on this level, has lost in many respects its character....

"Therefore, a supertask for us was how not 'to destroy the atmosphere' of old Moscow, the Arbat lanes with the intrusion of new buildings. This is on the one hand. While, on the other, the lofty and future-oriented idea of Interznaniye required its own expression by the advanced scientific and technical potentials of architecture.

"A large number of versions were drafted during the year. But we dwelt on the one, the concept of which envisages not simply the architectural completion of Kalininskiy Prospekt, but also its smooth turn into the Sadovyy Ring Road, to a certain extent its merging with it.

"The Center, in our opinion, should integrate the functions of a large congress center, a multifunctional exhibition complex, and a center of scientific and business cooperation.

"In the complex there are offices and halls for business meetings and conferences: it is very important to create comfortable conditions for intellectual contacts—these are knowledge banks, rapid information with a breakdown by problems, the necessary printing capabilities.... In short, it is necessary to build an 'intelligent building.'

"The ideology of Interznaniye determined our approach not only when creating the offices, the rooms for talks, and halls of various sizes and for various purposes, but also when designing the hotels that belong to the complex.

"After all, scientists and businessmen will live here. High-class hotels are proposed—with a training equipment room, saunas, a swimming pool, and so on. We decided not to raze the three apartment houses, which were built at the beginning of the century, but to convert them into apartment hotels: many scientists will come for a long time. They will come with their wives. And practical experience testifies that they prefer (moreover, insistently) to live precisely under such conditions. There is such a concept as : 'officetel' (a symbiosis of an office and a hotel). Businessmen from eastern countries prefer to live under conditions, when they have at their disposal not a standard room, but general-purpose space, which it is possible to divide into purely office premises, reception rooms, and sleeping quarters. We are proposing to convert one of the buildings into such an 'officetel.'

"An interior square will be established between the basic buildings of the Center (at the intersection of Kakovinskiy Lane and Kompozitorskaya Ulitsa). We will expand the existing square somewhat, and an opportunity will appear to create something like an open-air foyer: there will be entrances there to the hotel, to the exhibition halls, and to the area of small auditoriums. General recreational space, which is connected with all the buildings of the complex, will be the floor below (the first below-ground level). We will cover the square, which has been formed by the arc of the basic building, with a glass 'fold,' and another general-purpose space will be created. Above there is a winter garden, on the first floor there is a large auditorium.

"We are using the below-ground space very actively. The floors for garages and exhibitions will be at a depth of approximately 15 meters. The space is large, and by means of partitions it will be possible to organize convenient areas for a display of any size."

"But what will the Center give Muscovites? For at such a site one not simply can, but should solve quite a number of social problems?"

"The principle, which we incorporated in the basis of the composition, is the openness of our 'intelligent building.' That is why along the Sadovyy Ring Road we will preserve and restore two old three-story buildings. A comfortable pedestrian street, which will connect Kalininskiy Prospekt and the Arbat, will be formed between them and the buildings of the Center.

"It is very important to create not simply an 'intelligent and open building,' but also the environment around it. In the old buildings there will be stores and cafes."

Our conversation took place at the mockup. There are no working drawings yet. Only the concept has been worked out. Who will create all this—in metal and stone? The question is for V. Bulatov, a member of the presidium of the board of the All-Union Society for Knowledge.

"On 3 October of this year the Executive Committee of the Moscow City Soviet noted in its decision: 'For the purposes of the shortening of the time and the assurance of the high quality of the construction and subsequent operation of the Center to carry out the materialization of the design with the enlistment of one of the foreign firms within the framework of a joint venture on a credit compensatory basis.' On the Soviet part the All-Union Society for Knowledge, subdivisions of the Moscow City Soviet, the USSR Academy of Sciences, and the State Committee for Science and Technology belong to the joint venture. A working group for the establishment of the joint venture, which is now performing work on the approval of the foreign partner, has been formed. Among the interested firms are Rogner Tokolito (Austria), Portman (the United States), Ligresti (Italy), and Hjogard and Schultz (Denmark). After the careful analysis of the economic terms (there is also competition here!) the council of founders of the joint venture will approve the foreign partner, which together with the workshop of D. Solopov will begin the detail designing."

"What is the approximate cost of the Center?"

"About $200 million."

"A good deal. And within what time is it planned to repay the debts?"

"Within the complex the group of offices, which we will rent for foreign currency, the hotels, the various premises for the conducting of congresses, symposiums, and exhibitions, the knowledge banks, the services on their use—all this will make it possible to repay the credits in seven to 10 years. Once again I will emphasize: ordinary Muscovites, guests of the city, and especially children and young people will use the majority of services of the House."

Scientist Is Science's Basis

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[Interview with the President of the LaSSR Academy of Science, Academician Yanis Lielpeteris by M. Klisans [Klishans]: "Scientist Is Science's Basis"]

[Excerpt] [Passage omitted] **M. Klishans:** It is known that you intend to form a Scientific Council. How will it be organized and what will it do?

Y. Lielpeteris: Essentially, it will supervise the entire fundamental Science in Latvia. We should remember that that the Academy represents a relatively small part of the republic's science community. The numbers are as follows: at the present time in Latvia, approximately 34,000 people are working in science and science supporting services, of whom only approximately 8,000 people are working in the Academy. When we are talking about scientific degrees, approximately only one quarter of all doctors and candidates of science are working in the Academy. Also, the Academy receives only a small part of the funds spent on science in Latvia. The main function of the Scientific Council will be the distribution of the funds assigned for science, that is, for the Academy (so many rubles for this and that respective theme), for universities and colleges, and partially for scientific work being carried out by industry branch institutes. In my opinion, if one objectively assesses the input of industry branches into republic science, it is very small. One of the reasons for that is the fact that this work is financed by the respective industry branches, the majority of which are still subordinated to the all-union ministries, and, for this reason, it is difficult to control them within the republic. I think that the Scientific Council will have to thoroughly analyze the situation taking into account the interests of our economy and will have to come up with recommendations concerning the directions of the future development of our science. Obviously, this is not a problem to be resolved in one day, or even one year, since we cannot switch science from one direction to another in such a short time. This will require many years.

M. Klishans: But there is already a conceptual program dealing with the basic principles of managing and financing scientific research, that was jointly developed by the Latvian Academy of Sciences and the Scientists' Union. Therefore, in my opinion, the goals and directions of science are determined for the nearest future.

Y. Lielpeteris: Firstly, we must organize (elect) the Scientific Council, write its Statutes, determine its rights, tasks, and responsibilities. At the present time, in accordance with the decision of the State Planning Committee, a working group is appointed, which will organize this Council. This requires several months. The working group consists of people from the Academy, Scientists' Union, and university specialists, all of whom work very hard.

We lack the experience for the transition to the new system of science management, and one of the problems facing us will be the proper distribution of funds among the different branches of science. For example, today nobody objectively knows, how much money to assign for ecology, since we do not have the initial data. Of course, without any doubts, we can say that this branch requires a very large sum, but this is not the only problem we must solve. This will be one of the Council's tasks, to be resolved with the help of a group of experts.

However, there is another aspect to consider. We carry out a substantial number of studies on a quite high level, which are known in the USSR and abroad, but these studies (for example, works by the Academician Elmar Grens in molecular biology), at least until now, still do not provide a direct yield for Latvia. I can mention many such examples, but we must think, what to do. Liquidate them, or change their direction? Of course, not, because this way we would quickly destroy all the existing scientific stock. Therefore, we must perform a critical analysis of all the work we are presently performing, including that which we carry out in the Academy, and we shall abandon the research work that has no fundamental or practical importance. And I am deeply convinced that this inventory list should be made both from the bottom (institutes) and from the top (Scientific Council).

M. Klishans: When can such an inventory be practically made?

Y. Lielpeteris: Practically, only next year, because this is the last year of the five-year-plan period, and, in spite of the fact that the republic has made the transition to economic independence with regard to science, the old system of financing still exists. This means that we still receive funds, including those for colleges, from the USSR State budget, which formally is delivered to us through the republic budget.

M. Klishans: What is the Academy's budget this year?

Y. Lielpeteris: The same as last year, that is, approximately 20 million rubles. By the way, in order for one to judge, whether it is a large or small sum, I will tell you that, for example, the Scientific-Research institute of the factory VEF receives approximately the same sum of money.

M. Klishans: How much money does the Academy really need in order to work at the level required today?

Y. Lielpeteris: The practice of the world's developed countries show that the budget must be increased by several times. Actually, a certain percent of the state's national product, from two to seven percent, should be provided for science. However, it is unrealistic to expect an increase in our budget during the next several years, since the republic must invest in many other fields.

M. Klishans: How is the Academy's budget distributed and who does the distribution?

Y. Lielpeteris: We ourselves distribute the assigned funds, taking in account, however, the adopted five-year plans. Understandably, we have certain possibilities to control and redistribute the funds within the Academy, but not too drastically. We have already started to do so this year by providing additional funds to the branches of science that are specific only to Latvia, that is, for the Latvian language, Latvian history and culture, etc. In reality, until we introduce adjusted economic levers,it is very difficult to do, because administrative measures are not the best option.

M. Klishans: In connection with that, I would like to ask you about a problem that has not been resolved for an unjustifiably long time, namely, how long will the Institute of Language and Literature and the Institute of History remain second-class entities, since the Academy classifies them as second category institutes?

Y. Lielpeteris: The Law on economic independence provides in principle the opportunity for us ourselves to determine the salaries of scientists as well. Thus, in my opinion, the problem with with the categories of the institutes will disappear. Undoubtedly, the remuneration of scientists in these humanities institutes for a long time was low, which, of course, has not stimulated the development of these branches.

M. Klishans: Is it generally considered to raise scientists' salaries? Should not rather the structure of institutes and their personnel be changed?

Y. Lielpeteris: There should be a law in the republic that would determine how to calculate and pay salaries. The best way would be if the office manager could decide himself how much he will pay to a particular employee. However, we will not get to this point even next year. At the present time, it is good that we will not be anymore subjected to the respective USSR laws that we had to obey mandatorily until now. In practice, the republic will be able to decide, which scientific establishments should be closed and, in turn, which should be organized anew. By the way, it is quite possible that the Academy will have a new Institute of Molecular Biology. As to the existing institutes, we should recognize that it would be absolutely wrong for them to exist forever. The system should be flexible.

M. Klishans: Is the scientific potential that exists in Latvia being used efficiently and completely?

Y. Lielpeteris: Of course, not. The existing system does not satisfy us anymore, and we must create a new one. However, the basis of science is a scientist with his idea, which has to be valuable enough to be called a scientific idea. The whole organizational structure should be built in such a way that a scientist could realize his idea with maximum efficiency. This basic principle should be used in the creation of the scientific structure. The existing tradition is that the basic unit is the institute, but, essentially, the basic unit is the scientist himself.

M. Klishans: By the way, what are the relations and attitudes between our Academy and the USSR Academy of Sciences?

Y. Lielpeteris: The LaSSR Academy of Sciences has never been legally subordinated to the USSR Academy of Sciences. There was coordination of work and the financing connected with it. In reality, it looked approximately as follows: once in five years a group of prominent scientists from the USSR Academy of Sciences would arrive. They would stay several days, would have discussions, and, finally, pat us on the shoulder and say that we have worked well, the directions of research are urgent, and that we should keep up the good work. There was never interference in our work before. Legally, our Academy has always been subordinated to the republic Council of Ministers, but at the present time, in accordance with the Statutes, it is a sovereign entity.

M. Klishans: Could you name the sum in the budget that is being used for science directly connected with Latvia?

Y. Lielpeteris: To my knowledge, less than a half, approximately one third.

M. Klishans: In such a case, what would happen if this sum were spent in the most important fields?

Y. Lielpeteris: Money would be taken away from others. Essentially, it means laying off a group of strong scientists. At the same time, thinking of the future, we must create conditions for a labor market, including a scientific labor market. It is not written anywhere that a doctor of sciences, when he becomes unproductive, should not leave the field of science. These regularities should be sufficiently merciless, otherwise we will never achieve progress.

M. Klishans: Cannot you yourselves in the Academy control these processes?

Y. Lielpeteris: No, because of the Labor Code existence. We cannot lay off a person even if he has not produced any scientific work in one or two years. Sure, there is the certification, but it is ineffective in practice. Therefore, here again we must start by changing the labor laws. One form, which has been already discussed, is the contract hiring of scientists.

M. Klishans: I think that such a system would allow a different attitude toward scientific degrees. It is interesting to know, whether the theses are still being approved by the Higher Certification Commission?

Y. Lielpeteris: The efficiency of this commission is being questioned even in the Union. In my opinion, we should achieve a situation,in which the leading scientific institutes themselves have the right to grant scientific degrees, and it would not be necessary to approve them anywhere else. At the same time, the scientific degree received in Latvia should not be lower than any average comparable degree in the world.

However, speaking about the reorganization of this commission, one should blame the Central Asian republics, since there every chairman of a village ispolkom wants to be at least a Candidate of Sciences! In my opinion, the baltic republics must be freed from the concern of the Higher Certification Commission. We are continuously moving toward this goal.

M. Klishans: How does actually our Academy appear at the world's level?

Y. Lielpeteris: The scientific grade system is different in different countries. For example, the requirements for our doctor of sciences in principle are higher than those for a Ph.D. in the West, but the requirements in different Western countries themselves are different. There is an ongoing discussion to introduce other degrees in Latvia, for example, a master,s degree.

M. Klishans: What is today the real possibility for the Academy's scientists to raise their scientific level in foreign countries, to exchange their experience, and, generally, to go to scientific centers in the developed countries?

Y. Lielpeteris: The condition is only one, namely, you need to have hard currency, because the formalities are almost in the past and, in addition, this obstacle is continuously becoming even smaller.

M. Klishans: Does the Academy have its own hard currency account?

Y. Lielpeteris: Yes, both the Academy and the separate institutes have their own hard currency accounts. On an agreement basis, the institutes deposit a small percentage of their earned hard currency into a joint account of the Academy. However, at the present time, this sum is rather symbolic. Therefore, the Academy cannot send anybody for a business trip abroad for with its own money.

It is proper for the institutes to have their own hard currency, because they have earned it themselves.

M. Klishans: There is no hard currency and, obviously, there will not be any in the nearest future. But let us return to the things that are. For example, the Presidium of the Academy of Sciences. Do you intend to reduce your apparatus?

Y. Lielpeteris: The Academy's apparatus is about one hundred people, and it will be reduced in the nearest future. A decree of the Academy's Presidium has already been adopted.

The Academy is a free association of scientific institutes, at least, that is how it was supposed to be. In order to achieve that, we should ask the institutes about the functions they want to bring together. For example, the function of capital construction: will it be performed by each institute separately, or, in their opinion, such a department should function at the Presidium. Thus, we will reduce the apparatus, taking into account the functions it performs.

M. Klishans: Maybe, Latvia does not need the Academy of Sciences at all. The fundamental research could be carried out in the institutes of higher learning, and the institutes of firms could develop the applied sciences.

Y. Lielpeteris: Such an approach can be discussed, because it is not written anywhere that the Academy in its present form should exist forever. However, in my opinion, the prevailing thought in the Academy is that it should be saved for now, but, of course, based on the new principles. In spite of the fact that the Academy represents only a fraction of the Latvian science, the moral responsibility for republic science belongs directly to it. And, at least for only this reason, we must concentrate our "brains" together in order to be capable of resolving the strategic problems in the most objective way.

The main cause of our backwardness is not the structure. The main reasons for it are very poor supplies of material and technical means, poor conditions for the development of the new scientific generation (small salaries, shortage of housing, etc.), and other problems. Understandably, the system is to be blamed, rather than the academy.

M. Klishans: If this is the case, what is your opinion about how to balance fundamental and applied sciences?

Y. Lielpeteris: Until now, the scientific results of the entire Soviet Union were in practice used in the development of military and space technology. The regular branches of science that are being used every day have not in practice moved ahead, and the root of the whole problem is the lack of economic levers that would automatically allow the introduction of interesting, efficient developments. Total planning of the economy has made us detached, namely, science exists by itself and production exists by itself. This system must be broken up, firstly, by taxation and financing systems. We must repair the causes rather than the results.

M. Klishans: How can you contribute in your capacity as president to the development of these changes?

Y. Lielpeteris: We must develop concrete proposals in the form of laws concerning the introduction of economic levers and to achieve their adoption by the government.

M. Klishans: Is the Academy presently receiving government orders?

Y. Lielpeteris: They are relatively rare. One of them that is financed by the Latvian government is the development of power engineering in the republic. The Institute of Physics and power engineering has worked in this field for several years and continues this work at the present time. The work includes the development of various alternate energy sources (wind energy, underground thermal energy, etc).

From time to time the Academy receives some orders. For example, we were asked to perform a scientific examination of ecological problems. However, these jobs do not receive additional financing and scientists have to interrupt their current work for the duration of these projects. Such assignments, undoubtedly, must take place now and then, but they must be paid for. The same is true for the development of the republic's perspectives program.

M. Klishans: What can the Academy do to strengthen the economic independence of Latvia?

Y. Lielpeteris: Unfortunately, at the present time we cannot provide much help to the development of the economic mechanism. The Academy has very few strong economists, and the entire Soviet Union does not have too many of them. The fact that we have Doctors and Candidates of Economic Sciences means very little in this particular case, because our economic science until recently was too highly politicized. As a result, we have very few specialists in economy. Thus, we must mobilize all the specialists in the republic in order to use their knowledge to the greatest extent. In my opinion, this task would be best performed by the new Deputy Chairman of the Council of Ministers, economist, Academician Arnis Kalnin'sh.

M. Klishans: And the last issue: how will you react to the proposal of the Academician Yanis Stradin'sh to change the name of the LaSSR Academy of Sciences to the Latvian Academy of Sciences?

Y. Lielpeteris: This proposal was adopted at the recent general meeting of the Academy and I will ask the Council of Ministers to approve it.

Uzbek First Secretary on Republic Academy of Sciences

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[Speech by First Secretary of the Uzbek CP Central Committee I. A. Karimov at a meeting at the Uzbek SSR Academy of Sciences on 28 November 1989; first seven paragraphs are UZTAG introduction]

[Excerpts] The urgent tasks of academic science and its role in the accomplishment of socioeconomic changes in the republic were discussed at a meeting at the Uzbek SSR Academy of Sciences, which was held on 28 November.

The Uzbek SSR State Prizes imeni Abu Raykhona Beruni in Science and Technology were presented at the meeting.

Academic science has great potentials for the effective influencing of radical changes in the national economy of Uzbekistan. First of all it should direct efforts at the solution of such problems as the efficient use of manpower resources, the overcoming of the growing shortage of land and water, and the changeover to the new conditions of management. It was noted that today, as never before, the consolidation of all forces is necessary for the accomplishment of these tasks.

Academicians of the Uzbek SSR Academy of Sciences Kh.Kh. Usmankhodzhayev, Ya.Kh. Turakulov, I.Kh. Khamrabayev, A.A. Askarov, D.A. Musayev, K.Z. Zakirov, G.A. Pugachenkova, A.M. Akramkhodzhayev, and Kh.F. Fazylov and Corresponding Member of the USSR Academy of Pedagogical Sciences A.A. Azizov spoke about this at the meeting.

The scientists emphasized that along with the achievements, which exist in various fields, academic science still remains insufficiently effective. New developments are being introduced slowly in production, the material and technical base of scientific research institutes, laboratories, and pilot works needs substantial reinforcement, and the problem of training personnel requires close attention.

Secretary of the Uzbek CP Central Committee D.Kh. Khamidov and Deputy Chairmen of the Uzbek SSR Council of Ministers Sh.R. Mirsaidov and U.R. Umarbekov participated in the meeting.

First Secretary of the Uzbek CP Central Committee I.A. Karimov addressed the meeting participants. [passage omitted]

Science of Uzbekistan has a significant potential. Today 185 scientific research institutions, design bureaus, and scientific production associations are operating here. More than 500 plant design bureaus, laboratories, divisions of mechanization and automation, and so on are operating directly in the sectors of physical production.

In the sphere of science, including VUZ [higher educational institution] science, there are more than 17,000 doctors and candidates of sciences. During the current five-year plan alone 463 million rubles, or nearly a third more than during the preceding five-year plan, have been allocated for science.

How is one to use this potential properly, to distribute forces efficiently, and to find the optimum ratio between basic and applied research? Undoubtedly, this depends first of all on the academy—the headquarters of science of the republic.

The necessary reserve exists at the economy. Today its institutes have been put to work on the elaboration of 16 programs of basic research, which is being conducted by the union academy and encompasses the most important directions of modern science. They are fulfilling assignments of 27 all-union and 15 republic scientific and technical and socioeconomic programs. In a large number of priority directions the scientists of our academy hold a leading position in the country.

Along with traditional directions in recent years our scientists in the field of radiation and solar material

science, physical and quantum electronics, laser technology, the development of radiopharmaceuticals, seismodynamics, structures, the chemistry of plant substances, and others have been gaining more and more authority. The research and development in the area of mathematics and other fields of science are well known.

The collective of the Institute of Biochemistry can serve as an example of the skillful organization of research and a creative approach to work. The results, which have been achieved in recent years by the institute, are recognized throughout the world. Here priority directions are being developed rapidly, while the preparations, which have been developed at the institute, are being sold both in the country and abroad. The atmosphere, which has been created in the collective, is contributing to the creative growth of personnel.

Forms of the integration of science and production, which have justified themselves, are being skillfully used by the collective of the Institute of Experimental Plant Biology. The new strains of cotton, which were grown here, have been regionalized on an area of more than 700,000 hectares, and an economic impact of over 200 million rubles has been derived just by the increase of the quality of the fiber.

Scientists of the Institute of Chemistry of Plant Substances have developed 29 drugs, a number of them, for example, alapinin, as is known, are not inferior to the best world preparations of analogous action.

Geological and power engineering science of Uzbekistan and other scientific directions are consolidating their positions.

It would be possible, of course, to continue the examples of the creative and purposeful work of our scientists. However, our surrounding reality does not provide grounds for complacency.

What do we expect today from science, on what, in our opinion, should its efforts be concentrated?

Basic science of the republic, let us say frankly, is still far from being a powerful motive force of scientific and technical progress, developments, which revolutionize the production, are practically not being implemented. Suffice it to note that methods and recommendations make up half of the introduced developments and new technologies make up only a third. Owing to this, in spite of the constant increase of the expenditures in the area of scientific and technical progress, substantial technological changes in the national economy are not managing to [illegible]ed, the science-intensiveness of products of re[illegible]dustry lags significantly behind the average union level. In turn, the materials-output and power-output ratio is steadily creeping upward as a negative trend. Hence the low quality and high price of products and the corresponding skills of workers and their wage.

The assurance of the raising of the role of science in all spheres of vital activity of the republic to a fundamentally new qualitative level is seen as the main task of the republic Academy of Sciences. The times of the giving of orders to science, pure administration by mere decree, and the imposition on it of a "social order," which originated in offices of the apparatus, have passed. Such a practice not only is inefficient, but also creates the objective conditions for the revival of "Lysenkoism" with all the ensuing consequences.

But the personnel of science should also fully realize their responsibility. The times of idle comfort, when scientists merely gave a theoretical tint to the decisions that were formulated by the administrative command system, have passed. Precisely science is called upon today to blaze trails and ensure breakthroughs to qualitatively new technologies and a qualitatively new state of our society. While not limiting the directions of scientific research just to the framework and boundaries of the problems, which are connected only with the development of the productive forces of the republic, nevertheless I would like to stress that the nature of the scientific research, which scientific research institutions of the Academy of Sciences are conducting today, should to a certain extent reflect the problems, in the solution of which the republic is engaged. The works and recommendations of scientists of the Academy of Sciences, which have take in the fruits of creative research, should be the basis for all forecasting calculations and for the policy, which determines the prospects of the development of the republic. The underestimation of this costs, in my opinion, very much and at times turns for us into large losses, which many of our scientists remember and know well.

It is necessary to develop such a procedure of the functioning of science, when it would become, using the term now fashionable in science, a self-regulated and self-controlled system, which actively influences social processes and specifies for us, experienced workers, the content and nature of work.

For the present this most urgent task is being accomplished unsatisfactorily. In the last three years the share of developments for industry with characteristics greater than world ones and better than domestic ones has not exceeded one percent of the total number of completed jobs. Of the 50 models of new types of machines and equipment, which are developed annually, 42-43 are, unfortunately, technology of yesterday. The fact that in the republic such an advanced form of the contact of science with production as the scientific production association is not becoming widespread, is causing particular anxiety. The interbranch scientific technical center for cotton harvesters, the Uzgeliotekhnika Interbranch Scientific Technical Center, the Defoliant Interbranch Scientific Technical Center, and the Motor Engineering Center, which have been established here, thus far are not yielding appreciable results.

Such vital problems for the republic as the growing of high efficient strains of cotton and the development of a new generation of cotton harvesters, the efficient use of water and land resources, the development of new types of ecologically clean defoliants and pesticides, and the problems of regional cost accounting and the use of manpower resources and the formation of a national detachment of the working class should be solved, of course, on the basis of thorough basic analyses. Without the solution of these and other problems one will not get the republic out of the precrisis situation.

The qualitative increase of the efficiency of science cannot be the result of a bare appeal. It is also necessary to change the attitude toward scientific personnel, to increase their social status resolutely, and to make profound structural changes. The experience of developed countries clearly demonstrates—that country, in which they spare nothing for science and it accumulates the best of everything: manpower, material, and technical resources, thrives.

The sound manpower supply of science, the increase of the level of professional competence of associates, and the creation of all the necessary conditions for the realization of their capabilities are, undoubtedly, the main factor of the intensification of scientific progress.

Without belittling in the least the merits of the veterans of science, who have made and continue to make an invaluable contribution to the formation and development of the academy, still the tendency for the corps of scientific personnel to grow old is causing anxiety.

An acute shortage of specialists of the highest skill—doctors of sciences—is being experienced in the republic. Thus, for institutions of the academy their share comes to 7.3 percent, while for higher educational institutions it comes in all to 2.6 percent. Of the 458 positions of the academy, which are to be filled by doctors of sciences, doctors work in only 217. At higher educational institutions only 22 percent of the heads of characteristic chairs are doctors of sciences.

The Central Committee believes that the established practice of training doctors of sciences is not capable of ensuring the saturation of institutes with personnel of the highest skill and of eliminating the lag of scientific and technical progress. Therefore, it is necessary in the shortest possible time to identify young promising scientific personnel and to send them for practical studies to leading scientific centers of the country and abroad.

Such a form of cooperation, apart from all else, is also an important form of the international training of young scientists. And there is more. Today there is no and can be no republic self-sufficiency in science. Only varied, enriching contacts with scientists of other regions and other countries make it possible to satisfy the present requirements.

For the intensive increase and the reduction of the age of personnel of science and the sharp increase of the intellectual potential of Uzbekistan the leadership of the republic is also prepared to allocate the necessary assets, including foreign currency assets, to settle organizational questions in the center.

In particular, the republic leadership posed to the USSR State Committee for Science and Technology the question of allocating annually, starting next year, 100 places for our young scientists to do doctoral studies and practical studies at prominent scientific centers of the country and abroad. The question of increasing the number of graduate students and graduates of higher educational institutions, who are sent from Uzbekistan to the best higher educational institutions of the union republics, is also being settled favorably. Here it is a matter of expanding the scale of the training of scientific personnel in the area of biotechnology, molecular genetics, robotic systems, machine building technology, the economics of population and demography, and other leading directions of scientific and technical progress.

A set of measures is needed in order to ensure the influx of talented young people into science. The radical restructuring of the activity of the higher school, as well as the general educational school is also needed here. It is proposed to consider soon in the Bureau of the Central Committee the questions connected with the restructuring of the republic public education system, which, as is obvious from the materials we have, is proceeding slowly. Many scientists are advancing valid arguments in favor of the need to split up the Ministry of Public Education, to break it up into smaller units. These opinions, of course, will be taken into account when formulating the decision.

The effective development of science is possible only on a solid basic foundation. In this connection I would like to direct your attention to the need for the reform of the entire public education system, first of all the higher school. It needs constant supervision of the academy. It is a matter first of all of the assurance of the genuine, real integration of academic and VUZ science and the robust use of the large personnel, material, and technical potential that exists at the higher school. We must think of new forms of interaction and the pooling of efforts. It is not out of place to recall that in developed countries science is advanced mainly within the walls of universities and institutes. Moreover, a great scientist at all times was and remains an excellent educator, gives his knowledge to young people, singles out among the student body his own followers, and forms his own school. Meanwhile, during the past academic year here only six academicians and corresponding members of the academy officially registered work on an hourly basis at higher educational institutions.

The high turnover of personnel among young people at scientific institutions is also causing intense anxiety. In recent years more than half of the young specialists who were assigned to the academy, including a significant portion of the graduates of central higher educational institutions of the country, have been struck from the

list. The reasons here lie both in the established system of material stimulation and in the poor working and living conditions. It is also impossible not to see the decrease of the prestige of a scientist among young people, which has occurred in recent times.

The CP Central Committee proposes in the immediate future to meet with a group of young scientists and to seek their advice on this group of problems, to think through the problem collectively, and to attempt to find the necessary solutions. It is necessary to develop a republic system of the search for, identification, and support of talented, gifted young people and the creation of all the conditions for the development of their abilities. We and you should think about the specific details and stages of this system. Among them one can see the establishment of a special republic fund, the establishment of a network of schools and boarding schools for gifted children, and the institution of various awards for young scientists.

The next priority in the matter of intensifying science is the fundamental strengthening of its material and technical base. We know that in the capital-labor ratio per scientist—less than 30,000 rubles—our academy lags significantly behind the academies of the other union republics and that at institutes there are extremely few advanced experimental and technological instruments and equipment and the rate of their replacement is low.

At the same time, however paradoxical, the available equipment in both academic and VUZ scientific subdivisions is being used extremely inefficiently. At Tashkent Polytechnical Institute, for example, scientific equipment worth 400,000 rubles, including much imported equipment, has been removed from circulation and is not being used. For the system of the Academy of Sciences the uninstalled equipment at institutes comes to more than 1.3 million rubles.

A way out of the situation is seen in the establishment of a unified republic scientific technolis, which is furnished with the most advanced equipment that conforms to the best world standards. And precisely this technolis should serve all science of the republic on a cost accounting basis.

The problems of the financing of science also require thorough analysis. Numerous suggestions on the establishment of new institutes and the transformation of operating ones are being received by the Central Committee and the Council of Ministers. Of course, the structure of the scientific complex cannot be static, stiff, it should be modernized and improved in conformity with the realities of socioeconomic development and with the needs of life. Obviously, we need to establish an institute of machine science, an institute of water problems and environmental protection, and a number of others. But still it is a matter not of simple reorganizations and the establishment of new units.

It seems that the future lies with the changeover to the special-purpose financing of republic research programs from a unified fund for the development of science of Uzbekistan. In other words, money is to be allocated not to one institute or another, but for a problem, moreover, science is to be demonopolized and it is to be developed on a competitive basis, by stimulating various schools and concepts and creating for them equal opportunities to search for something new. Today it is obvious that it is necessary to create powerful stimuli of scientific research, without being afraid of the emergence of parallel structures, to agree to the organization of the rivalry, the struggle of scientific ideas and different approaches, and in this struggle to forge a new generation of scientists.

It is urgently necessary to formulate the concept of scientific policy in the republic at least to 2010 and the corresponding program of the scientific and technical development of Uzbekistan.

Some people believe that it is necessary to develop only cost accounting principles in the financing of science. I think that this is incorrect. One should think about the creation of venture capital for the financing of exploratory operations. The practice of categorizing scientific research institutes is obviously also obsolete—the remuneration of labor should depend first of all on the degree of importance of the results and their novelty and practical value. The question of building up the internal design and pilot production base also requires serious attention.

As one of the reserves of academic and sectorial science it is necessary to note the competent and prompt use of the opportunities that are being afforded by conversion. A specific program of the scientific substantiation of the restructuring of the institutions and sectors, which are to be converted, is necessary.

On the basis of the present trends we should also resolutely undertake the increase of the status and competence of the republic academy both within the republic and in interrelations with the center. It should have much independence and freedom in the solution of its own problems and should itself specify the priorities in conformity with the needs of the republic.

Order should also be established in the matter of the distribution of foreign currency assets, which are distributed among institutes of the country, and in the establishment of international relations and contacts. The academy should not be in the position of a petitioner who takes in a little at a time. The Central Committee expects from you practical suggestions on this level. The management of the academy and its aktiv must boldly pose questions, while we will undertake their settlement together. [passage omitted]

In speaking about the problems and tasks, which face the Academy of Sciences, it is also impossible not to speak about the role which party organizations are called upon to play in their solution. Today this is an impressive force—1,767 CPSU members. The success of perestroyka in science and the formation of a healthy moral

and psychological climate in collectives, and it is now normal far from everywhere, in many respects depend on the unity of communists, their active position in life, and adherence to principles.

The most important party task is the attraction of scientists and first of all the cream of our science to extensive participation in the sociopolitical life of the republic and to work with young people. In acute conflict situations, when a direct and frank dialog with the people is needed, the word of the patriot scientist should ring significantly. In the most difficult situations we turn for help and advice to you, comrades. Unfortunately, it is also our fault that we are not using your potentials fully. And the fact that several scientists are carrying out their own sociopolitical activity through informal organizations, is a direct and deserved reproach of party committees.

Comrades! I have attempted to describe the group of questions and problems, the solution of which, in our opinion, will enable science of Uzbekistan to attain new levels and to become a buttress in the socioeconomic changes that are planned in the republic over the next decades. Intensive preparation for the 28th CPSU Congress is now under way. We are also actively preparing for the 22d Congress of the Communist Party of Uzbekistan, which will make it possible to adjust the course of our development in all directions. I hope that our meeting and the thoughts and suggestions, which were heard today, will help us in the preparation of the forum of communists of the republic and in the determination of the steps, which make it possible to increase the efficiency of science in all spheres of our life and, hence, to intensify perestroyka and to improve the well-being of the people.

AzSSR Scientists Form Independent Union

907A0102A Baku BAKINSKIY RABOCHIY in Russian 26 Dec 89 p 4

[Article (AZERINFORM): "The Union of Scientists of Azerbaijan"]

[Text] Being the bearers and generators of new ideas, the people of science should be in the vanguard of the movement for the intensive development of Azerbaijan. The Union of Scientists of Azerbaijan, which was established at a constituent conference, is setting this goal for itself. It was held on 22 December at the House of the Actor.

Academician of the Republic Academy of Sciences T.M. Aliyev, rector of the Azerbaijan Institute of Petroleum and Chemistry imeni M. Azizbekov, opened the conference.

Doctor of Biological Sciences A.M. Askerov, chairman of the organizing group, reported on the program and the draft of the charter of the Union of Scientists of Azerbaijan.

The conference elected the board of the Union of Scientists of Azerbaijan. Academician T.M. Aliyev was elected chairman of the Union, A.M. Askerov, director of a department of the Institute of Botany of the Azerbaijan SSR Academy of Sciences and a member of the International Union for the Conservation of Nature and Natural Resources, was elected chairman of the board.

At the request of an AZERINFORM correspondent he told about the goals and tasks, which face the new organization.

"The Union of Scientists of Azerbaijan," Aydyn Askerov said, "is a self-governing, independent public scientific organization. Scientists—representatives of academic, VUZ [higher educational institution], and sectorial science, who are united on the basis of a common goal: to promote solutions of the global scientific, technical, and socioeconomic problems facing the republic—become members of it on a voluntary basis. The activity of the Union is carried out in conformity with the Azerbaijan SSR Constitution, legislation of the republic, as well as its own charter. Cooperation with the Azerbaijan SSR Academy of Sciences, the State Planning Committee, the Ministry of Public Education, and scientific and public organizations of the republic and with similar all-union and international organizations is envisaged. Among the functions of the Union is participation in the elaboration of steps on the development of international scientific cooperation and ties with leading centers of the country. The conducting of foreign economic activity is planned. For this purpose joint collectives of Azerbaijan and foreign scientists can be organized and contacts with research centers of foreign countries can be established.

"Our new organization sees its chief task in promoting the consolidation of the scientific potential of the republic and perestroyka in science, on the basis of the fundamental goals that face the sovereign Azerbaijan SSR. We have to take part in the formulation of the concept of a unified structure of the organization of science at academic and sectorial institutes and higher educational institutions and of suggestions on the improvement of the principles of the planning and financing of scientific research. The Union is actively participating in the formulation of the priority directions of the scientific, technical, and socioeconomic development of the republic, including the conceptual questions of its transition to economic independence. We will actively participating in the training of highly skilled young specialists, particularly doctors of sciences. Much should be done on the promotion of the achievements of Azerbaijan science both in our country and abroad.

"The Union is called upon to contribute to the solution of the problems that are connected with the improvement of the housing, medical, and sociocultural security of the personnel of science. It will carry out the public support and defense of its members, as well as their scientific ideas and developments.

"The establishment of affiliates of the Union in the Nakhichevan ASSR, the Nagorno-Karabakh Autonomous Oblast, Kirovabad, Sumgait, and other large cities and of departments at higher educational institutions is planned in the future.

"During the period of the preparation for the conference the draft of the charter of the Union of Scientists of Azerbaijan was discussed widely in scientific collectives. At the conference its participants made a number of interesting, useful suggestions which will be taken into account during the final drafting of the program and charter of the Union."

Report on March 1989 General Session of UkSSR Academy of Sciences

Paton Report on Academy Achievements

Kiev VISNYK AKADEMIYI NAUK UKRAYINSKOYI RSR in Ukrainian No 7, 1 Jul 89 pp 6-14

[Report by President of Ukrainian SSR Academy of Sciences Academician B. Ye. Paton: "Main Results of UkSSR Academy of Sciences Activity in 1988 and Tasks for 1989"]

[Text] Last year was marked by further deepening of the restructuring of our Academy's activity. The concentration of effort and resources on priority directions of basic research, broadening Institutes' rights and independence, and strengthening the environment of glasnost and openness in collectives have helped improve the efficiency of scientific search.

Quantitative and qualitative indicators of our development are shown in the annual report all members of the Academy of Sciences have had a chance to read. An analysis of these indicators shows certain positive changes and progress.

The scope of basic and applied research kept growing; its financing in 1988 exceeded R420 million. This is 20 percent more than at the beginning of the 12th Five-Year Plan. State budget appropriations that are mainly used for supporting basic research increased 24 percent and were equal to R212 million. The increase was achieved mostly due to the expansion of Academy's participation in working plans of interbranch S&T complexes, in State S&T programs, and the Integrated Program of S&T Progress of CEMA Member Countries up to the Year 2000; it was also due to a more dynamic development of basic research along priority directions. The scope of work performed by enterprises and organizations of our research-production base was seven percent higher than in 1985—close to R257 million.

If one takes into account the fact that during this period the total number of personnel in Academy's scientific institutions only increased by 8.8 percent, while the number of employees of the research-production base even decreased by 1.4 percent, we have the right to speak of an appreciable increase in labor intensity and productivity.

Two scientific discoveries were recorded in 1988. All in all, eight discoveries were made in the last three years of the current Five-Year Plan - almost one-third of all discoveries made by our Academy during the entire 25-year period of their recording. The number of Certificates of Authorship for inventions keeps increasing. Last year, over 2,900 Certificates of Authorship were received, almost 22 percent more than in 1986. The fact that the number of inventions used in our institutions' developments implemented last year increased by almost 33 percent is gratifying.

Direct ties of Institutes with their foreign partners increased substantially. Forty license agreements and orders were signed and 101 patent certificates were received. This is 33 and 25 percent more than during the first year of the current Five-Year Plan, respectively. All these facts indicate the higher level of our developments and increased interest of other countries in them.

Last year was marked by a number of serious results that are at par with the world level. I shall only mention some of them, as they are completely covered in the report.

Studies of spectral splitting of concentrated flows of solar radiation are of great scientific and practical importance. Based on these studies, an original system of conversion of solar to electric power with improved efficiency was developed.

A large step forward was made in studying physicochemical fundamentals of structure formation and strength of composites. New eutectic ceramic materials were developed, with ductility limit 50 to 100 percent higher than that of the best foreign analogs.

The discovery of the phenomenon of selective heterocoagulation of mineral colloidal particles by microorganisms has substantially broadened our knowledge of the nature and mechanisms of live cell interaction with metals. Of special interest is the possibility to use it for biological extraction of precious metals from solutions.

A discovery in the field of physiology, which radically changes the notion of the skin permeability mechanism, was a great success. It makes it possible to develop new in principle methods for disease prevention and treatment and optimize working conditions at hazardous production facilities.

The discovery of the phenomenon of two-parent heredity of genetic determinants of the cytoplasm during somatic crossbreeding makes a ponderable contribution to the development of cell engineering, genetics, and plant selection.

Academy's contribution to technical renovation of various branches of the national economy had increased. In particular, plasma-detonation surface hardening of arbitrary shape products, which has no analogs, was proposed. The technology and equipment for deep treatment of iron-carbon melts with high-temperature reagents has high resource- and energy-saving parameters.

Methods for and programs of dynamic loading of high-capacity gas-turbine plants made it possible to considerably improve their parameters and reliability. A line for

applying protective polymer coatings to sleeves of internal combustion engines had been implemented with high efficiency.

Thus, last year a solid backlog of basic research developments was created. These developments have significantly increased the Academy's scientific and innovative potential and hence its ability to influence processes of retooling of various branches of the national economy.

However, it is unfortunate that opportunities available to us have not been fully utilized. This is true for both old problems we have not solved yet and those problems that have appeared recently. We have problems in the organization of new research and practical implementation of obtained results, in the activity of our cost-accounting organizations, foreign economic activity, personnel policy and social sphere.

During his recent visit to the Ukrainian SSR, M.S. Gorbachev visited, together with the Republic's leaders, the Problems of Material Science Institute and MNTK [interbranch S&T complex] "Poroshkovaya metallurgiya" [powder metallurgy] and familiarized himself with the exhibition of works of this and several other institutions. Our Academy had been given an assignment to present its proposals on a number of urgent problems of further development of science and technology and acceleration of S&T progress in the national economy. The proposals were prepared and submitted to the CPSU Central Committee via the Central Committee of the Communist Party of the Ukraine. I can report to the Session that, based on these proposals, necessary directives have already been issued to the USSR Council of Ministers, planning bodies and branch Ministries and agencies.

A high assessment given by M.S. Gorbachev to the level of scientific potential of our Academy, which he visited for the second time, cannot but make us happy; however, it is not a cause for complacency. It is well known that the era of stagnation has left difficult legacy. Inflation, general disbalance and budget deficit are intensifying. The technological level of most manufacturing industries is absolutely unsatisfactory. Tremendous resources are immobilized in unfinished construction projects.

Among problems that are of key importance for rehabilitation of our economy and its social orientation are first of all the food and ecological problems. It is on these two problems and tasks related to them that I would like to dwell in greater detail.

You know that the recent Plenum of the CPSU Central Committee stated its firm determination to completely solve the problem of providing food for the country. It was emphasized that for stable intensive development of agriculture it is necessary to switch to qualitatively new technological and organizational levels in agroindustrial complex branches. Science has an important role in ensuring this.

Our Academy has significant achievements, which make it possible to efficiently solve both current and long-term tasks of intensification of agricultural production. Thus, a high-yield brand of winter wheat "Kyyanka" makes it possible to get yields in excess of 100 centners per hectare. Two new brands of winter wheat are being tested; they can be grown using intensive technology and their yields are three to four centners per hectare higher than that of "Kyyanka." Dwarf and semidwarf forms of winter wheat, which were first derived from wheat brand "Mironovskaya-808", and weed-inhibiting brands are fairly promising.

Eleven high-yield corn hybrids were created. They have been districted over approximately 4 million hectares, which is equal to one-third of the country's early corn crops. Sugar beet brand "Tsentralnyy" is cultivated in the Republic; its crops have already exceeded 20,000 hectares. An industrial technology of sugar beet processing without using manual labor has been implemented in three oblasts. Also, new methods for improving shelf life of root crops were developed, which make it possible to considerably increase sugar yield. New brands and hybrids of mangel, winter rape and turnip and high-yield brands of apple-trees and other fruit plants are characterized by high yields.

Our Institutes have on their asset side a number of preparations that help improve the quality and reduce losses of agricultural products. Here, I shall name modified aerosols; on their basis, ecologically clean compounds for treatment of seeds of various crops and effective means of veterinarian treatment of younger animals were developed. Wide use of the technology of preserving moist grain will make it possible to improve its storage on threshing floors. Nitrogen cooling and refrigeration systems (so-called baromodules) and new technologies for storing vegetables and fruits in a controlled gas environment substantially reduce losses.

Our agriculture suffers tremendous losses due to chronic shortages of serviceable equipment. Dozens of original technological processes are aimed at solving this problem. They make it possible not only to restore expensive parts and components of agricultural machines, but also considerably improve their quality.

But the trouble is, all these developments are most often used in isolated instances. We think this situation is first of all due to unwillingness of practical workers to face the available innovations potential. However, scientists too, and I am specifically stressing this point, should admit that not all innovations they offer are marked by sufficient completeness and technological perfection.

It is necessary to overcome a serious lag in basic directions such as molecular biology, genetic engineering, biotechnology, selection and genetics. Unfortunately, the majority of biological Institutes are unexplainably stubborn in sticking to traditional methods and virtually

ignore the newest achievements in these fields. Especially troubling is the level of work on developing state-of-the-art biotechnologies, which can lead to an even larger lag in this important field. We do not have the right to accept this situation. The Second AN UkSSR Section and its head Vice President V.I. Skok must finally draw decisive conclusions.

The Academy can also make a much larger contribution to ensure outpacing development of the production and social infrastructure of the countryside. We have here quite a good S&T backlog and practical experience, particularly in solving an important problem of wider utilization of natural gas for countryside gasification.

Thus, the use of polyethylene pipes and technologies for welding and laying them during gasification of farms in the Novoodessa rayon, Nikolayev oblast, made it possible to cut construction time by two-thirds, cut construction costs in half and save 18 tons of metal per 1 km of pipeline. This and several other developments formed the base for Republic's proposals on wide-scale gasification of rural regions and agroindustrial complex facilities, which V.V. Shcherbitskiy submitted to the CPSU Central Committee. First of all the Gas Institute and Electric Welding Institute imeni Ye.O. Paton, but also (speaking of organization of mass production of high-quality high-density polyethylene pipes) chemical Institutes must take the most active part in practically solving this problem. Our Academy must make a substantial contribution to this matter.

Ecology is of course another important problem. Nowadays, it draws close attention of our Government, Party bodies, scientists, business managers and all strata of our public. It is beyond doubt that without healthy and safe environment all our social goals and politico-economic ideals are simply unrealizable.

Despite measures that have been taken, the ecological situation in our Republic remains extremely complicated. Approximately 57 percent of its land stock has been ploughed, which is five times more than the country's average. Over 50 percent of agricultural land has suffered various types of erosion. Resource- and energy-intensive industries prevail in the structure of industrial production, and they already have caused and unfortunately keep causing great damage to the environment.

Serious problems have been caused by chemicalization of agriculture. Among them are considerable pollution of soil, agricultural products, water and air, and increased incidence of diseases among the population, and especially children.

Republic's environment has been virtually brought to the brink of exhaustion of its ecological capacity. I am absolutely convinced that the only way out of the current economic [per original] crisis is to change decisively to a new type of the society-environment relation. Ecological considerations must have unconditional priority over other goals the mankind sets for itself.

It begs the question of what must science provide under these conditions? The duty of scientists is to help shut off the existing sources of pollution and eliminate the damage already caused to environmental complexes. The keys to the solution are ecologically clean, or in the beginning at least ecologically acceptable, technologies for all industries without exception.

Development of ecologically recovering technologies is also an important task. Our Academy pays fairly serious attention to creating such technologies. Among the newest developments offered for large-scale use I shall mention the typical technology of low-toxic fuel combustion in industry and transportation, several methods for neutralization and purification of drainage water and industrial discharges, the technology of deactivating water in circulating water supply of power generating facilities, and high-efficiency gas cleaning heat utilization units for TETs. Extremely promising are biological plant protection methods, which make it possible to significantly reduce the use of pesticides.

But nowadays all this is insufficient. The task of comprehensive ecologization of the entire S&T progress is coming to the forefront. Technologies' cleanliness and safety are becoming the criteria of their completeness, and sometimes they are more important than production gains the technologies provide. These tasks apply to the First and, of course, Second AN UkSSR Sections. It is desirable that their heads Vice Presidents V.I. Trefilov and V.I Skok take a more principled position on these issues.

Science must give both substantiated recommendations and expert assessments onchanges in structural proportions of the national economic complex. In the Ukraine, the main direction is to substantially increase the share of science-intensive production processes that do not increase the load on the biosphere. Such recommendations and expert conclusions must also deal with the distribution of productive forces.

Moreover, we must subject to retroactive expert examination literally everything that has been accumulated in the national economy. And in doing this, we must draw substantiated conclusions as to necessary modernization or maybe even stopping the operation of manufacturing facilities that are the most intensive polluters of the environment. The development of economic and legal levers for rational utilization of nature is also an important task.

Key problems among the above mentioned ones determined the essence of our Academy's Program of Biospheric and Ecological Studies for the Period up to the Year 2015, which became a part of the corresponding AN SSSR [USSR Academy of Sciences] program. Our proposals are also represented in the Country's State Program on Water Conservation. In these programs, serious attention is paid to the implementation of results of completed studies, and first of all of available (although few) energy- and resource-saving technologies.

We also came up with the initiative to organize All-Union ecological monitoring based on the superminicomputer network "Delta", which had been developed at our Academy and has been in series production since last year. In this respect, we should intensify our work on developing means for measuring ecological parameters, including various biosensors.

By intensifying our effort on environment conservation and recovery, we are thus bringing closer the era of noosphere, which had been presaged by the great V.I. Vernadskiy. This is the most noble and optimistic goal. All in all, our Academy must sharply intensify its work in the field of ecology.

The period of revolutionary renewal that is taking place in our country has sharply increased the role of social sciences, and first of all in developing a truly scientific concept of modern socialism, theoretical justification of ways of implementation of the reform of our political and economic systems and cognition of mechanisms of structural changes in the national economy. The recent Plenum of the CPSU Central Committee named the development of problems of ownership, cooperation, leasing and commodity-money relations, and taking into account interests of various social groups as the primary task facing the scientists.

Comprehensive theoretical development of problems of the national policy is an important task of humanitarian institutions. This is especially urgent because of the discussion of general principles of restructuring of the management of the economy and social sphere in Union Republics, based on expanding their sovereign rights, self-management and self-financing, as well as with respect to preparation for the Plenum of the CPSU Central Committee on national relations.

On the whole, we need a philosophical comprehension and sociocritical analysis of our time and studies of new processes in the cultural field. Unfortunately, our social scientists are only barely approaching these problems, and actions of a large number of them are lacking the necessary initiative and aggressiveness.

In recent years, we have been talking a lot about sociology, but unfortunately there have been no appreciable changes so far. And the problem is not the absence of a Sociology Institute, but the absence of serious results, which our sociologists already must be producing now. The historians too are restructuring their work slowly; they have not yet gotten rid of dogmatic strata and biased assessments of our past. We think the Republican Program of History Studies that is being developed will form a sound foundation for qualitative changes in studying urgent problems of the history and culture of the Ukrainian SSR.

The main criterion of the validity of all our reforms is how much they facilitate the development of a person and improve person's living standard and social protection. Of course, all this requires that the person to besocially active.

Naturally, in this respect it is very important to distinguish between a desire to take a creative part in perestroyka, on the one hand, and simulation and speculation, if you will, around it, on the other. Unfortunately, recently we have been watching numerous manifestations of this very destructive attitude to perestroyka. I am speaking of the activities of certain social groups aimed at creation of alternative political structures on a national basis in the form of various "fronts" and "movements." In reality they lead to destabilization of the sociopolitical situation and sometimes even to confrontation.

In this respect, I shall say that social scientists should more actively and with greater interest approach studies of processes that are taking place and positively affect their development. Admittedly, the initiative in bringing up a number of burning topics belongs to various informal organizations, rather than to scientists, as should be the case.

Recently, in our institutions too we have seen attempts by individual extremist elements to "play" on forestalling perestroyka processes, apply pressure and generate turmoil using their demagogical slogans.

Presidium of the UkSSR Academy of Sciences has been addressing this problem many times, and it stated its attitude to the "Program of the Ukraine's Popular Movement for Perestroyka." Institutions' managers in cooperation with their Party organizations must intensify their explanatory work, take active part in broad discussions of pressing problems and resolutely rebuff demagogues' attempts to use democratization and pluralism of thoughts to desorganize the work of labor collectives and sneak in their narrow group interests. Nowadays, the social science firmly holds a leading position in science, and our Third Section and its head Vice President I.I. Lukinov should intensify their work.

You remember that the course of restructuring of our Academy's activities was examined in great detail at the General Session last November. Therefore, I shall only dwell on main results and shortcomings of work performed in recent months and on our top priority tasks.

The system of planning and financing of research work has undergone significant changes. Institutes have begun independent formation of search works. An agency contract has appeared. In 1989 it has included almost 130 new subjects and five programs, with over R21 million in budget financing. A competitive selection of proposals and expert examination of subjects and programs have been introduced. However, I would say that this only marks the beginning, and we must do a lot in order to organize real contests and effective expert examination. The main thing here is to direct financing toward the most promising and priority basic research.

Now, we already can sum up the results of our effort in ensuring our participation in AN SSSR basic research programs. They include 60 works by our institutions. However, if one is to speak with self-criticism, the results

could have been much more ponderable, had Science Departments and Institutes shown more initiative and persistence.

The preparation of State S&T programs is nearing completion. You know that 14 such programs have been approved, and it is important not to waste time and establish close ties with the Expert Councils and GKNT SSSR [USSR State Committee for Science and Technology] personnel directly involved in management of the programs.

The passive role of our Scientific Councils in forming these programs drawsour attention. I think we should once again most seriously discuss their activity, because the recent reorganization has virtually produced no results. Apparently, the Councils should be created for a limited term, determined by the development of specific scientific programs, and given real rights in competitive selection of subjects and, the most important thing, allocation of financing.

Work also was done on forming intra-Academy scientific programs. In particular, programs in the field of mathematics and pesticides and program "Uran" were approved. Preparation of seven Republican programs of basic research up to the year 1995 continues. However, the overall problem of forming both intra-Academy and Republican scientific programs must be examined with utmost attention. Problem selection, determining their number and procedures for their preparation and financing are far from being developed, and a lot is going on by inertia.

Of course, creation of conditions for the outpacing development of basic research depends first of all on the effectiveness of the State science policy. One must ensure a multifold increase in corresponding budget appropriations and ensure the true priority of science in centralized allocation of resources. We also need various funds for supporting basic research. Without such funds, even the competitive system will not rid us of manifestations of monopolism. In particular, it seems important to create a respective Republican fund that is independent of appropriations along the GKNT SSSR lines. On our proposal, this problem was already discussed in the UkSSR Council of Ministers and in the Commission on Science and Technology of the Republic's Supreme Soviet, but unfortunately there is no final solution yet.

Of course, problems that are cropping up when organizing studies under the new economic conditions are not simple. The first thing one has to talk about is the decreasing interest on the part of enterprises in financing scientific developments, especially long-term ones. The reduction in the amount of contract funds that were used before for supporting basic research makes even more acute the need to increase budget appropriations.

One should also take further steps to increase intra-Institute cost accounting, use collective forms of remuneration of labor and broaden real rights of scientific collectives. It is well known that our Academy's Presidium has already delegated a lot of its functions to Institutes and freed them from excessive regulations and petty tutelage. We shall keep following this line. The structure and functions of the Presidium staff have been strengthened accordingly, and its size is being reduced sharply. I think one should remove restrictions that make it impossible for Institutes to independently control a number of aspects of their activity, such as inviting specialists on contract, creating at Institutes' discretion engineering and service centers and implementation subdivisions with the status of a juridical person and other infrastructure elements for efficient scientific service and accelerated practical implementation of scientific achievements.

However, Comrades, let us be frank. The problem is not just the rights, but also the desire and, the most important thing, the knack for using them. This has been talked about many times, but unfortunately our Institutes have not been showing yet the necessary independence and initiative in solving a number of problems that are coming up. Often, a number of good decisions and important information simply do not reach Institutes' personnel, but rather stop at the management level, which is of great concern to us.

I shall specifically dwell on some new in principle moments in Institutes' activities and research-production base. Effective this April 1, Institutes are given the right to go independently to foreign markets and conduct export-import transactions. Here, the main direction must be organization by Institutes of joint ventures with foreign companies for manufacturing science-intensive competitive products and creation of joint laboratories. Unfortunately, the majority of our Institutes display complete helplessness and sometimes unwillingness to work.

It is also imperative for our institutions to create small enterprises, independently of or jointly with branch Ministries. When visiting our Academy, M.S. Gorbachev noted that this was the most promising way of rapid mastering of progressive technology and new in principle products. Here, one would be able to efficiently and flexibly use various forms of scientific and production cooperation, both those that presented themselves in a good light (engineering centers and base points) and scientific production cooperatives or State-cooperative companies.

For the sake of objectivity we should admit that all these forms have not yet been widely used by us, although some of them were conceived in our Academy. Suffice it to say that only 15 AN UkSSR institutions have base points and that all physics Institutes have not yet created a single one. We think that biologists and chemists can create very interesting base points and small enterprises manufacturing low-tonnage products. On these problems one should not wait for directives from the top—the initiative must be with the institution and the author of the development.

Under the new economic conditions one should pay the most serious attention to the operation of enterprises of our research-production base, especially to their specialization and cooperation. One should ensure a more even production utilization, on-time redistribution of orders and efficient organization of product manufacturing for Academy-wide needs.

At present, Science Departments have an extremely important role in restructuring of all our work. This is where the buck stops on such problems as defining the strategy of development of scientific directions, organization of contests and expert examinations, operation of Scientific Councils and preparation of forecasts and programs. The Departments were been given necessary rights and resources. Unfortunately, a number of Departments have not yet comprehended their new role. This has been talked about at Academy's Presidium meetings, but so far there have been no real changes. The situation must be corrected decisively and without delay.

Now I shall briefly dwell on personnel problems. One can see certain improvements in this area. The share of scientific associates in the total number of Academy's employees is increasing. In the last three years the number of Doctors of Sciences has been increasing at a double pace. The activity of our personnel has considerably intensified; in particular, this was manifested during elections of Institutes' Directors, which in 1988 took place in 25 scientific institutions. Fourteen scientists were elected to these positions for the first time. It should be noted that at eight Institutes there were at least two nominees in each.

The Academy has added a large group of young professionals—over 950 of them. Each Department, with the exception of the History, Philosophy and Law Department, received the five-percent addition. This gives one reason to count on the inflow of fresh ideas and general activization of scientific search.

At the same time, on some aspects of the personnel policy, and unfortunately first and foremost on qualitative ones, there have been no appreciable changes. The number of Doctors and Candidates of Sciences in priority scientific directions is still insufficient. Organization of fieldwork of young researchers at large USSR science centers and especially at science centers of foreign countries must be radically improved. Practice demonstrates that success in this area depends first and foremost on personal contacts and interest on the part of our leading scientists. The initiative in this important matter must rest completely with Institutes' management and of course with Academy members.

In conclusion, a few words on the Academy's social development. Unfortunately, in this area not everything is alright, which cannot but negatively affect the climate at our Institutes. The most painful problem is housing construction. Despite the fact that now we appropriate for this purpose additional 10 percent of our investment allocated for branch "Science" and have expanded the self-construction method, the Academy's waiting list for housing in the last three years was only 150 people shorter and is now 6,000 people long.

On top of that, through the fault of Institutes' Directors, only two-thirds of funds appropriated in 1988 for housing construction were used. Obviously, this situation is absolutely unsatisfactory. And we expect the Capital Construction Administration of trust "Akademstroy" and especially Institutes to immediately rectify the situation in this most important for the Academy matter.

Funds for the development of the social sphere are still not being drawn from interested Ministries. Here, a lot depends on the initiative and I would say promptness of Institutes themselves. New economic conditions and formation of funds of social development are creating the most favorable conditions for this. And these conditions must be fully realized. There is no need to wait for some kind of magic phenomena and actions.

We have a huge and strenuous work ahead of us. The main thing required from us is to persistently improve Academy's activity and decisively overcome difficulties, while carefully and critically analyzing the past and drawing necessary lessons. Nobody will do it for us.

Yelchenko's Address to General Session

Kiev VISNYK AKADEMIYI NAUK UKRAYINSKOYI RSR in Ukrainian No 7, 1 Jul 89 pp 34-37

[Speech by a member of the Politburo, Secretary of the Central Committee of the Communist Party of the Ukraine Yu. N. Yelchenko; passages in boldface as published]

[Text] All of us are under the deep impression of the elections of USSR People's Deputies, the most democratic elections in the entire history of our country. Their final results are still to be summed up, but we know, for instance, the names of scientists of the Ukrainian Academy of Sciences elected to the supreme organ of power.

They are Nikolay Mikhaylovich Amosov, Sergey Andreyevich Andronati, Oles Terentyevich Gonchar, Vsevolod Ivanovich Klokov, Boris Yevgenyevich Paton, Viktor Dmitriyevich Romanenko, Sergey Mikhaylovich Ryabchenko, Aleksey Alekseyevich Sozinov, Viktor Ivanovich Trefilov, Vladimir Fyodorovich Utkin, and Vladimir Illarionovich Shinkaruk.

May I again sincerely congratulate them and wish them success in carrying out their difficult Deputy's duties.

I want to stress upfront the extreme responsibility of Republic's scientists for results of their work during the period of unprecedented concentration of perestroyka processes. The economic reform is expanding, and the reform of our political system is being implemented step

by step. The recent Plenum of the CPSU Central Committee has defined the essence of Party's new agrarian policy, which must solve the most painful problem, the food problem.

The main thing nowadays - and this is our position at the Central Committee—is for Republic's scientific collectives not to lose the correct political orientation, i.e., the understanding of the leading role of science in perestroyka, the role that ensures the most important thing - prospects of our social development, while at the same time feeling their responsibility for solving urgent problems of S&T progress.

In Boris Yevgenyevich's report we find specific answers to the question of how the scientists are fulfilling critical tasks. However, I will be frank with you—it is desirable that from such milestone reports and speeches one can see the results of work performed after the previous Session, and that when analyzing the preceding period one state reasons for imperfections and name those who personally allowed disruptions. I think we should get rid of our traditional pseudointelligent delicacy and come ever closer to really friendly mutual exactingness.

Today I would like to touch upon some in our opinion most important problems from the standpoint of their political vision, although one cannot avoid certain repetition. At the same time, I am counting on your understanding of the critical trend of my speech. The Ukrainian Academy of Sciences has never been among the backward. The contribution of its leading collectives to the progress of science and technology is well known and universally recognized. However, even this positive factor contains its dialectic contradiction, which sometimes acts today as an inhibiting factor. The thing is that some heads of scientific collectives have gotten used too much to universal recognition of their progress and to praises. Any attempts to call their attention to shortcomings and the need to normalize the internal atmosphere in their collectives and substantially increase research efficiency are often taken rather badly.

At the same time, to tell you the truth, stagnation difficulties and "failures" have not spared science, as well as other social spheres. Some Institutes are very slow in implementing the strategy of priorities proclaimed by the Presidium. In many Institutes there have been no real changes, neither there was a meaningful regrouping of forces in the interest of accelerated development of the most promising directions.

What is the reason? In our opinion, it is first of all insufficient democratization of the science life, where a monopolistic "right" to the truth flourishes and therefore there is no room for discussions. Under these conditions, the interests of science and hence interests of the country often stay in the background, while narrow group interests or even personal ambitions of individuals take precedence.

It is clear that such situation is intolerable and calls for immediate and decisive actions. Its complexity is also due to the fact that negative phenomena in scientific collectives often coexist peacefully with real progress. And still, one can only achieve consistent forward movement by getting broad sections of scientists involved in the formation of the scientific policy. This is a direct responsibility of the management and Party organizations of academic institutions.

One should admit insufficient persistence of AN UkSSR Presidium in implementing consistent democratization and overcoming bureaucratic deviations. We should not close our eyes to this phenomenon. Nowadays, bureaucratism tenaciously embraces academic structures, from the Presidium to scientific subdivisions at Institutes.

The reduction of the Presidium staff is proceeding with great difficulty and strain. The real initiative and independence of scientific institutions have not been unleashed yet. Institutes are timid in broadening their departments' rights, especially in the area of material stimulation for ponderable results of their work.

There are also shortcomings in their work with personnel. The mechanism of elections and certification has a lot of malfunctions. But still, the main shortcoming is weak inflow of talented young people. One has talked about this so much! However, changes toward imrpoving the situation are happening very slowly. One would hope that heads of scientific institutions (and theseare our leading scientists) and their Party organizations will finally achieve appreciable improvement in this important albeit ticklish matter.

We all admit that the acceleration of S&T progress and deepening the interaction of science and production are among the most urgent problems.

Our Academy has serious achievements in this area. Among these are the policy aimed at developing the design-technological and research-experimental and manufacturing base, as well as certain practical results of this work; academic Institutes' engineering centers and base points, which have provedtheir value as an efficient method for goal-oriented work with industries; and interbranch S&T complexes, whose activity Mikhail Sergeyevich Gorbachev highly appreciated, using the Problems of Material Science Institute as an example.

One should hardly have to prove the proposition that **nowadays studies in the fields that directly contribute to the acceleration of S&T progress must be conducted especially intensively. Among these are the development of new industrial and agricultural technologies, microelectronics, genetic engineering, and a number of problems of machine building and resource saving. Scientists are also facing a lot of tasks with respect to the new concept of informatization.**

These and other S&T problems will not be solved unless the old system of organization and stimulation of scientific work is abandoned, the effectiveness of utilization of the technological machinery of science increases and it is modernized. Frankly speaking, changes in th is area are

still insignificant, although the rights of scientific organizations in solving these problems have now been expanded considerably.

We are in dire need of a substantiated Academy's position as to the specific ways of restructuring the management of Republic's economy and social sphere on the basis of self-management and self-financing. A draft of General Principles of such restructuring has been put up for a nationwide discussion, and it is planned to develop a USSR Law on Local Self-Government and Local Economic Management. **So how can one manage this without thescientists' voice and scientific substantiation of the mechanisms that will indeed ensure the combination of the strong center and strong Republics**.

The March (1989) Plenum of the CPSU Central Committee has posed important tasks for science, particularly on the development of problems of ownership, cooperation, leasing and commodity-money relations. Under the new economic conditions, broad opportunities are opening up for implementation into agricultural practice of new wheat brands, corn and sugar beet hybrides and industrial technologies for growing them that have been created by Academy's scientists. This will be their real contribution to solving the food problem.

We all understand very well the reasons for the extreme worsening, both socialand political, of ecological problems. We also know the principled position of the Academy—it has repeatedly suggested concrete ways for solving a number of urgent problems of environmental protection. This particularly relates to rational siting of AES [nuclear electric power station] and chemical enterprises in the Republic and the ill-fated Danube-Dnieper canal.

We are not only speaking about further work on identifying painful ecological points, competent analysis of the situation and development of clean manufacturing technologies. The collective of Academy's scientists can and, we think, must raise a broader task - **to form a strategy of environmental protection work in the Republic and scientific foundations of ecological thinking and planning**.

I would also like to stress the need to ensure wider participation of numerous amateurish associations that have an ecological direction in the implementation of environmental protection measures. It would be nice if they do group around scientific institutions and are guided in their conclusions by competent scientific information rather than by dilettante rumors.

And lastly, one more group of problems—the role of scientific intelligentsia in the renewal of the ideological sphere.

Complex and contradictory processes are taking place in the social life of our Republic and the entire country. The social initiative of the masses is seething as never before. The election campaign, which became an important stage in the implementation of the reform of our political system, has shown it clearly.

And despite the outcry of our ideological enemies, it has been clearly proven that a one-Party system does ensure the development of democracy and socialist pluralism of thought. One can hardly overestimate the experience accumulated during the election campaign. We will undoubtedly draw necessary conclusions from this experience. But one can see even now that despite all the peripetia, the winners in the elections were the Communist Party, its policy of perestroyka and its election program, which had been supported by broad masses of workers.

I would like to add that **our Academy's jurists, sociologists and philosophers must make their contribution to the improvement of the election mechanism and other key problems of implementing the reform of our political system, as well as to the cause of formation of the State of law**. There is a wide open field of action for all social sciences.

Nowadays, economics scholars are facing not only the task of analyzing and criticizing negative trends that form in the process of reorientation of business activity, but also the task of developing constructive proposals, particularly regarding the mechanism of interaction of various forms of ownership, implementation of cost accounting, price formation, structural reorganization of the economy and scientific support of the entire economic reform.

Acute problems of history and the theory and practice of inter-national relations are calling for profound and comprehensive studies. I.F. Kuras has already stressed this.

At present, the Academy, VUZs [higher educational institution] and representatives of creative unions must combine their effort in developing a wide-scale integrated program of the development of Ukrainian national culture. This is a noble and extremely needed work.

Rethinking of our historic experience and elimination of "blank spots" in history are among the most urgent problems of our political and spiritual life. This is first of all a job for our history science and history scholars.

All in all, the current ideological situation in the scientific environment is characterized by a sharply higher activity. There are keen discussions and political dialogs, and positions are being compared. These are normal phenomena under the perestroyka conditions.

What is abnormal is that political positions of a number of scientists, especially young ones, are not marked by ideological clearness, and for some of them these positions are even ideologically wrong. This has particularly manifested itself in the attitude to the well-known draft of NRU ("The Ukraine's Popular Movement for Perestroyka") program and to the "movement" itself. A large number of well-known Academy scientists stated in principle their rejection of the draft's ideological and theoretical platform. It is well known that AN UkSSR Presidium also took a clear position in this matter. But one cannot say that this is the common attitude of academic institutions' collectives. Of course, the reasons for this are not simple. The main reasons are a weak

ideological and theoretical training of a certain group of scientists and a passive attitude of a number of Party organizations of academic institutions, who do not notice or do not want to notice this and practically do not react to the wrong political position of Party members, although, if one is to call a spade a spade, this position is simply incompatible with the CPSU Rules.

Some heads of scientific institutions and leading professionals in social sciences are evading a scientific analysis of provisions of the draft of the NRU Program. Some of our scientists have turned out to be so naive that behind the smoke screen of pseudorevolutionary verbiage they have not been able to see who indeed are those who began rallying under the "movement" 's banner. These are the very same forces whose political aspirations have nothing in common with perestroyka. Don't we know that it is around this very "movement" that our outspoken ideological adversaries from the so-called Ukrainian Helsinki Union, Ukrainian Democratic Union and some other similar groupings are rallying. Is it an accident? We have many times called the attention of both the public and our activists, including those at scientific institutions, to this problem.

The Central Committee of the Communist Party of the Ukraine is deeply convinced that only a really fighting attitude of Party organizations and an increase in their prestige will make it possible to improve the ideological and moral atmosphere in scientific collectives. Only personal responsibility and a principled position of each Communist-scientist can put a stop to negative processes and anti-perestroyka sentiments. We hope this friendly advice will be heeded and Party organizations will pay proper attention to the renewal of the entire cause of Marxist-Leninist education of scientists. We stay ready to help you in this endeavor.

At the same time I would like to appeal to members of our Academy, the well-educated and politically tempered people. The young generation of scientists needs not only your professional leadership, but also your ideological and spiritual influence. Verily does science die without morale. You must relate this fundamental motto to the young.

The Central Committee of the Communist Party of the Ukraine and the Republic's Government have always paid attention to the development of science and strengthening of our Academy, as well as to scientists' needs. This is well known. And this will continue to be the case. And from you we expect to getponderable results of your scientific work.

Academician on Financing, Organizational Issues

Kiev VISNYK AKADEMIYI NAUK UKRAYINSKOYI RSR in Ukrainian No 7, 1 Jul 89 pp 42-44

[Speech by Director, Physiology Institute imeni A. A. Bogomolets, AN UkSSR, Academician P. G. Kostyuk; passages in boldface as published]

[Text] Our society is going through a period of revolutionary changes that cover all aspects of its life without exception. It is understandable that science too finds itself in the middle of these changes. **Science is the most important product of social conscience; it determines the future of a people, just as the language ensures the preservation of a people's past**. If our knowledge does not develop at a higher pace, the opportunities for technical progress will be exhausted very soon. And this is what causes the anxiety.

Alarming is the fact that the draft on the distribution of functions between the USSR and Union Republics considers the development of basic science as only the AN SSSR task. The AN SSSR is indeed our pride, and its services in the development of basic science are exceptional indeed. But one cannot close one's eyes to the Academy's peculiarities either. Thus, out of 284 Academicians, 207 work in Moscow, 64 in the RSFSR, and only 13 in other Republics. Does this mean that the development of science in those Republics is not that essential? Doesn't, say, our Academy conduct basic research in a number of directions at the highest world level (often at a higher level than corresponding AN SSSR Institutes)?

Here is another, more specific example. Despite all the difficulties, the Government made a decision to considerably increase financing of basic science. R400 million were appropriated for the USSR Academy of Sciences, and the money was very promptly transfered to Institutes for conducting a number of All-Union scientific programs. R160 million had to be transfered to Republics, but the journey of these appropriations turned out to be extremely complicated. The funds are still overcoming bureaucratic obstacles and have not yet reached our Institutes. Most of these funds are coming back to the AN SSSR for financing the Siberian and Far East Departments, i.e. if anything, if at all, reaches, for instance, our Academy, it will be very little, plus the funds will be entangled in such bureaucratic restrictions that it will be very difficult to use them. So let us look the truth in the eye, Comrades.

Apparently, in such situation our Government and we ourselves have a special responsibility for the outpacing development of science in the Ukraine. I am not sure this statement is fully comprehended. Unfortunately, detailed data regarding financing of the Academy of Sciences are not available to us. In this area, our glasnost is not very much developed yet.

In his report Academician B.Ye. Paton cited general comparisons. He was comparing things to 1986. But to

make a detailed comparison to the last year, one has to resort to non-documental materials. Thus, for instance, budget financing for our Physiology Institute imeni A.A. Bogomolets has been cut by 5 percent compared to the last year. The same thing happened to other biology Institutes. The standard established for payroll is several percent lower than the actual standard. To pay our employees, we are already forced to borrow money from the next quarter. Nowadays, we are busy feverishly looking for any cost-accounting subjects in order to make the ends meet at any rate. Apparently, this reflects a the reduction in budget financing for AN UkSSR. At the same time, Deputy Chairman of the UkSSR Council of Ministers V.G. Urchukin has organized a special Government fund for stimulating works that yield immediate practical results, i.e., for financing works that are very remote from science per se. In the Republic with the population of 50 million, which is equal to combined population of France, Belgium and Netherlands, isn't there a way to support certain applied developments other than by cutting appropriations for basic research ?

I am stressing again—I am not able to use any documents, and if this is not so, I will readily take my words back. I am proposing the following. I think that first of all it is a matter of honor for us to make changes in the draft on the distribution of functions between the AN USSR and Republican Academies and put it in writing that the first and foremost task for each Union Republic and its Academy is the outpacing development of science, because it is this development that determines the future of its people. Of course, this should be done to an extent the Republic itself deems possible.

Secondly, I think that we should second provisions in Academician B.Ye. Paton's report that state the need to increase budget financing of basic science in the Republic. Comrades, the progress the USA and other developed countries pride themselves in and the fact they are ahead of us in S&T progress are results of investing money in science. Basic science cannot live by assimilating nitrogen from the air. it can only live by budget appropriations. Such is the situation in the entire world. This must be the case in our Republic too.

And the third proposal. This is a request to the Academy: is it possible to expand glasnost to budget matters of the Academy of Sciences? Is it possible to do something so that we know in advance what the situation will be next year, so we can can somehow participate in all this? Nowadays, we openly discuss much more important things, and in this area are probably no secrets.

Paton Fields Questions

Kiev VISNYK AKADEMIYI NAUK UKRAYINSKOYI RSR in Ukrainian No 7, 1 Jul 89 pp 73-74

[AN UkSSR President Academician B. Ye. Paton's answers to questions]

[Text] Questions by Department Head, Organic Chemistry Institute, AN UkSSR, Doctor of Chemical Sciences Professor A.Ya. Ilchenko:

1. Doesn't AN UkSSR Presidium consider it timely to make changes to the AN UkSSR Bylaws that would provide for creation of Councils of Work Collectives at Institutes?

2. Doesn't Presidium think that ideological and personnel work at Institutes and therefore their scientific activity are hindered to a large extent by the fact that there is no AN UkSSR Party Committee at AN UkSSR Presidium and that Institutes' Party bureaus are subordinated to raykoms, which judge Institutes' work not by their scientific achievements but by their participation in patronage work etc.?

Answers:

1. Apparently, one should take into account the fact that we are talking about academic Institutes, where there are Academic Councils, which are now elected in a democratic way and which must work actively and solve main problems, and there are also scientific councils. As far as social problems are concerned, they are being solved by trade unions with the participation of broad sections of public. Some Institutes have already organized Councils of Work Collectives. So far this has not produced any interesting results. I think one should study this experience thoroughly and then draw final conclusions.

2. The question of restoring the Party Committee at the AN UkSSR has been discussed many times, particularly at the Central Committee of the Communist Party of the Ukraine. The Academy of Sciences has grown very much, and Kiev's share of its potential is only 80 percent. Now, the role of Party organizations is changing radically, in accordance with resolutions of the 27th CPSU Congress and 19th All-Union Party Conference. I already said today that we have sharply broadened Institutes rights and independence. Probably, under these conditions it is inexpedient to again bring up the Party Committee question, because the Committee would become an unnecessary bureaucratic superstructure.

Question by Deputy Director for Scientific Work, Hydrobiology Institute, AN UkSSR, Candidate of Biological Sciences T.A. Kharchenko:

In 1989 AN UkSSR has received additional financing in accordance with State programs in the amount of R30,756,000. When these funds will be given to Institutes? Will AN UkSSR Presidium take off a portion of these funds in a centralized manner and what can the funds be used for?

Answer:

Indeed, just last week we received the GKNT [State Committee of Science and Technology] SSSR decision regarding the allocation of these funds to the AN [Academy of Sciences] UkSSR, but only for material and technical expansion, without increasing the payroll fund.

AN SSSR and GKNT SSSR do not have a joint opinion in this matter - AN SSSR allo ated the funds among basic programs, while the GKNT decision stipulates that they must be spent for the State S&T Program, inter-branch S&T complexes, the Integrated Program of S&T Progress of CEMA Member Countries and Integrated Program for the USSR S&T Progress, but does not say a word about programs of basic research. We think the funds will be spent to a large degree for supporting basic research, and 10 percent will be centralized for procurring equipment (including personal computers) that will be supplied to Institutes.

I agree with comments that have sounded at the Session—there must be glasnost and clearness in problems of financing. Here, first of all Departments and Sections must play an important role. I also agree that there has not been proper glasnost so far. I would like to stress once more - we received funds the note is asking about not last November, as we were promised, but only this March.

Question by Department Head, Biochemistry Institute, AN UkSSR, Doctor of Biological Sciences O.P. Demchenko:

How can you explain the fact that neither Institutes nor AN UkSSR Academicians are taking part in elections of USSR People's Deputies? These are not elections to the Moscow City Soviet, you know!

Answer:

Apparently, the author of the question has not read the Regulations for Elections very carefully. They state that 25 seats that were initially allocated for nominating candidates to People's Deputies are given to the USSR Academy of Sciences and All-Union academic organizations. But in the course of numerous discussions at the AN SSSR Presidium and the Ideological Department of the CPSU Central Committee, with whom I personally had consultations, we were told that one could bring up the question of nominating Academicians and Corresponding Members of the Union Academy working at Republican Academies of Sciences. And that is what we did. Two Academicians, V.S. Mikhalevich and I.I. Lukinov were nominated from the AN UkSSR. You know how the first elections at the AN SSSR ended. Only eight Deputies were elected. The rest had to be voted for once more. In April, an AN SSSR Presidium meeting on a new nomination of candidates will take place. And the elections will proceed as provided in the Regulations. We will strive not just not to lose the positions we have won, but also to make sure that our candidates pass with this list.

Changes in Statutes of USSR Academy of Sciences Advocated

907A0108A Moscow POISK in Russian
No 2 (37), 11-17 Jan 90 p 5

[Article by USSR People's Deputy Academician Vitaliy Ginzburg: "The Charter of the Academy: Adjustments Are Required"; passages in boldface as published; first paragraph is POISK introduction]

[Text] The regular election to the USSR Academy of Sciences and the reelection of the presidium of the Academy should be held in the spring of 1990. Before this it is necessary to make a number of amendments and additions to the charter, that is, to the basic document which regulates the work of the Academy.

Changes of the charter can be made only with the consent of not less than two-thirds of the total number of its full members (academicians). It is possible to do this only at the General Assembly or as a result of a specially organized vote. Both procedures are quite awkward and shou'd be prepared. Considering that extremely little time remains to the election, I consider it expedient to state my own suggestions on the pages of POISK. I hope that other associates of the Academy (including, of course, its members) will also participate in the discussion, which will promote the quickest making of the optimum decisions.

I should note that the suggestions listed below are very moderate. It would now be difficult to amend the charter radically (for example, having eliminated the division into full members and corresponding members), a good deal of time would be required for this.

Toward the Reelection of the Presidium

I consider it necessary to make the procedure of election to the presidium more democratic. It should be elected by **not only academicians, but also corresponding members**, that is, by all the members of the Academy. This procedure all the more is also in effect in case of the election to the bureaus of the departments of the USSR Academy of Sciences.

Of course, the presidium (except for its members, who are included on account of position, for example, the academician secretaries of departments) should be elected on an alternative basis. But it is hardly necessary to record this in general form—it is clear as it is. Moreover, I do not believe that the existence of an alternative is mandatory. For example, if there is one candidate for the position of president or a specific vice president for a specialty, one must not require the nomination of another candidate without fail. But here is what it is necessary to record:

The presidium members "without portfolio" are elected without the recording of their specialty. Those who received the majority of votes are elected.

In the first election of several presidium members, which was held on an alternative basis in 1988, the specialties were recorded. I consider this absolutely incorrect. Specialties (for example, mathematics) are represented in the presidium both by the academician secretaries and to some extent by the vice presidents. There are no grounds to elect by specialty the presidium members "without portfolio," it is necessary simply to elect the most worthy of the nominated candidates.

Further, I propose to stipulate in the charter the following:

A presidium member can withdraw ahead of time from the presidium at his own request (that is, resign).

I wrote in considerable detail about this, in reality, in the article "The Right to Resignation," which was published in POISK (No 8, June 1989). If a person cannot perform his duties (for example, due to illness), it is inadmissible to hold the position (in reality, another person's position) and it is necessary to resign.

Election to the Academy

Much has already been said about the shortcomings of the existing election system. The article on this theme of Academician Yu. Kosygin (IZVESTIYA, 25 July 1989), with whom I agree in many respects, appeared comparatively recently. It is necessary to publish in advance the lists of candidates and to have time for their sufficiently extensive and public discussion. I hope that Yu. Kosygin and others will write about this in greater detail. I will dwell now on just one question.

It is necessary, at last, to prohibit election to "special" and "additional" positions. I spoke about the fact that this is an unsound practice back at the General Assembly of the Academy in 1984.

In the latest Statute on Elections to the USSR Academy of Sciences, which was adopted in 1987, our commission for the amendment of the charter succeeded in inserting a paragraph that prohibits the "transfer" of unfilled positions from one department to another. Here the prohibition of the making of "additional vacancies" available, that is, the election of members of the Academy to positions, which were not announced in advance for the given department, was intended. Unfortunately, thus far this decision has remained merely a wish on paper. It is time to put an end to this and to record precisely and clearly in the statute on elections that elections are held only for vacancies which have been announced in advance. I am not talking about the intolerability of making available "special vacancies," that is, vacancies, for which only specific people can run.

On Advisers and the Maximum Age

As is known, until 1987 it was possible to remain the director of even an immense institute, as well as a presidium member to any age. Everyone knows to what this led.

The introduction of a maximum age does not seem a simple question to me. Under the conditions of genuine democracy (in case of election by competition with alternative candidates, in case of a secret ballot) a maximum age, perhaps, is also not needed. A person, who is already incapable of managing, either will himself not propose his own candidacy, being afraid to be voted down (I have in mind people who are prepared to refuse something only under some threat, but not on the order of his conscience), or will be voted down. As far as I known, in the United States the maximum age in general is now being abolished as being in violation of human rights. I myself am still a supporter of the introduction of a maximum age (of course, provided it is mandatory for everyone and does not allow any exceptions).

I believe that under our conditions a mandatory maximum age for the filling of management positions is necessary. However:

— the maximum age should be identical for members of the Academy and for all others. It is reasonable to select as such an age 65 or 70 (now for members of the Academy it is 70, while for others it is 65);

— the specification of the positions, which it is impossible to hold in case of the attainment of the maximum age, is debatable. I do not see reasons why it is mandatory to become an adviser, while it is impossible to remain the head of a sector or laboratory, if the number of their associates does not exceed, say, 10-15 people. If, as is now accepted, it is impossible also to remain the head of such small groups, it is necessary to introduce officially the concept of "the group of an adviser" with approximately the indicated maximum size. Meanwhile, as far as I know, there are now no rules in this regard;

— I do not see any grounds to have two categories: adviser of the board of directors and adviser of the presidium. One position—adviser of the USSR Academy of Sciences—is needed. The presidium can use the advice and assistance of all members of the Academy. If a large workload for the presidium falls to any of them, it is possible to give him supplementary pay and so on. In any case, the status of advisers should be specified and reflected in the charter or some other statute.

On Voting Procedure at the USSR Academy of Sciences

At present the following procedure has been adopted at the USSR Academy of Sciences: the words "elect" and "reject" appear on the ballot. It would seem that every opportunity for the expression of will exists. But if one does not cross out either of the indicated words or crosses out both, this is considered a vote "for (!)." This is complete nonsense, as many people have already repeatedly stressed, the last time in the already mentioned article of Yu. Kosygin, who called such a "procedure" total lawlessness.

It is necessary to change this "rule." **It is necessary to consider that only the ballot, in which the word "elect" has been left and the word "reject" has been crossed out, has been cast "for."** If only the word "reject" has been left, this, obviously, is a vote "against." If neither word has been crossed out or both have been crossed out, it is necessary to assign such a vote to the category "abstained."

How We Are To Amend and Revise the Charter, the Statute on Elections, and So On

It is necessary to make changes in the charter and the documents, which accompany it, in a though-out manner. Therefore, I propose that the commission for amendments of the charter would make in advance a summary of all the received suggestions and would send it to all the members of the Academy with the request to make remarks by a specific date. Then the commission will adopt its own suggestions. Prior to the submittal to the General Assembly these suggestions are discussed by the presidium. Here the presidium often makes substantial changes. But so what, this is the right of the presidium. I propose, however, that **both the suggestions of the presidium and the suggestions of the commission would be submitted to the General Assembly.** As is known, and this is absolutely correct, at the General Assembly itself it is impossible to submit new suggestions and to change anything. It is impossible only to accept or reject the submitted suggestions (I repeated, it is possible to act only in this way, it is impossible to "patch" the charter on the go; all new suggestions can be examined the next time). However, the existence in some cases of alternative suggestions (of the commission and of the presidium) is entirely democratic and justified.

Academician Likhachev on Formation of Russian Academy of Sciences

907A0077A Moscow POISK in Russian
No 31, 30 Nov-6 Dec 89 p 5

[Interview with Academician Dmitriy Sergeyevich Likhachev, by POISK correspondent Arkadiy Sosnov, under the rubric "There Is a Vacancy": "The National Character of the Academy, as Academician Dmitriy Likhachev Sees It"; date and place not given; passages in boldface are as published]

[Text] **POISK:** Now the debates are not dying down: Is the Russian Academy of Sciences needed or not, and if it is necessary, in what form?

D. S. Likhachev: It goes without saying that it is needed. It should be on the same level as the academies of all the union republics. How to revive it is another matter. To transfer to it today the regional departments and institutes of the USSR Academy of Sciences would mean to render the latter lifeless. If we establish new scientific institutions, scientific personnel will be needed for them. The most capable ones are employed, and, therefore, this will inevitably be a third-rate academy. Which I would not want. It is better not to have a Russian Academy at all than to have a third-rate academy!

What we actually need is a distinct national character of the Academy. And the humanities represent the national character. That is, various philological, historical, and art criticism disciplines. The Russian Academy of the old model was always noted for this.

POISK: Dmitriy Sergeyevich, you probably remember the time when it was located in Petrograd-Leningrad....

D. S. Likhachev: Yes, on the First Line of Vasilyevskiy Island, and it was truly a world institution. Although also much smaller than the present Academy.

The crisis dates to the turn between the 1920's and 1930's, when they transferred the Academy of Sciences to Moscow. At that time despite the protests of scientists they did away with the Russian Academy, just as a large number of institutions which belonged to the RSFSR. One must seek in the archives the justification of this decision. It was said, in particular, that there were quite enough Russian scientists at the USSR Academy of Sciences to represent the national character. In any case, I, at that time a worker of a publishing house, had a sense of injustice and the temporary nature of such a decision.

For the Russian Academy was not only a national, but also an international center of humanities research. And, for example, the Russian scientist Melioranskiy established oriental studies at the Academy of Sciences, the Russian Corresponding Member Poppe established Mongolian studies in the United States. In musicology we had Asafyev and Ossovskiy. Literary studies were strongly represented. True, neither Tomashevskiy nor Eykhenbaum belonged to the Academy of Sciences. In the 1920's this was still abnormal. But Aleksandr Veselovskiy, who remains a most prominent figure in literary studies to this day, preceded them. That is what the Academy was like!

And under our conditions it should be revived. It is impossible to develop it at once, by decree, because a large number of bureaucrats will gather here—there are always too few genuine creative people. It has been verified: any new institution begins with the recruitment of a staff of employees and their provision with the appropriate conditions, and this process often becomes an end in itself.

POISK: Is it easy to fall into the bureaucratic trap?

D. S. Likhachev: Yes. Therefore, I proposed **at first** on the basis of the Literature and Language Department of the USSR Academy of Sciences to establish another one—of RSFSR languages, literature, history, and art studies. This will not require large outlays and personnel transfers. While we have the scientists for the new Department. Because, for example, very worthy specialists in Russian philology have not been elected to the Academy for years. Poetics is not represented here. But what is poetics—we do not have a single academician in the Russian language. This is simply outrageous. It is even more outrageous than the lack of a Russian Academy of Sciences. There are members of the Academy in Ukrainian, Uzbek, Georgian, and Armenian, but not in Russian. It is an impossible situation....

I do not want to name names, in order not to cause a stir, but I see at least five absolutely dependable academicians and 10 corresponding members for this Department, which will reflect the national character of Russian science.

POISK: If this is the first stage of the restoration of the Russian Academy, when will the second stage begin and how will it take place?

D. S. Likhachev: This depends on successful work at the first, basic, stage. In general on the success of the reforms in the academic system. The reforms should ensure the existence of scientific schools, the diversity of opinions, the independence of evaluation. In other words, the destruction of monopolism, the terrible illness of our science.

POISK: Now those, who have nothing to do with science, are playing up in every way the very fact that the RSFSR lacks its own Academy....

D. S. Likhachev: These people to all intents and purposes are not thinking about what the slow establishment of the Russian Academy with a staff, say, equal to the staff of the Uzbek Academy of Sciences can develop into. Cunning people, who long to get themselves a job, will rush forward, while science itself will not advance. One has occasion to hear that in the Union there are the Academy of Medical Sciences and the Academy of Pedagogical Sciences, while in the RSFSR there are not. But in my opinion, thank God that we do not have a poor Academy of Pedagogical Sciences. Therefore, in order not to cause the chain reaction of the establishment of parallel academic structures, I consider it most reasonable, as I already said, at first to open the Department of RSFSR Languages, Literature, Art, and Art Studies as the basis of the Russian national Academy of Sciences with the traditional humanities emphasis.

And a final thing. The center of the new Department should be in Leningrad. A different address is absolutely inconceivable. The institutes of ethnography, oriental studies, and Russian literature with their priceless archives; the Library of the Academy of Sciences, which during practically its entire history was oriented toward humanities publications; the Public Library—by its charter the National Library of Russia, which is fifth in the world in the size of the collections...are located in Leningrad. I am prepared to continue this list, but it is no less important to speak about the following. The establishment of the "Russian" Department will contribute to the revival of Leningrad as the greatest cultural center of the country and the world.

Lenin Prize Nominees Named

907A0106A Moscow IZVESTIYA in Russian 10 Jan 90 p 2]

[Article: "From the Committee for Lenin and USSR State Prizes in Science and Technology Attached to the USSR Council of Ministers"]

[Text] The Committee for Lenin and USSR State Prizes in Science and Technology attached to the USSR Council of Ministers reports that the following works have been allowed to participate in the competition for the 1990 Lenin Prizes:

1. V.A. Koptyug, V.A. Barkhash, V.D. Shteyngarts, V.G. Shubin. "Basic Studies of the Structure and Reactivity of Carbocations."

Recommended by the Novosibirsk Institute of Organic Chemistry of the Siberian Department of the USSR Academy of Sciences.

2. D.G. Knorre, N.I. Grineva, R.I. Salganik, Z.A. Shabarova. "The Development of the Bases of the Addressed Modification of Nucleic Acids."

Recommended by the Institute of Molecular Biology imeni V.A. Engelgardt of the USSR Academy of Sciences.

3. V.S. Pugachev. "Works Which Laid the Foundations of the Statistical Theory of Control Processes."

Recommended by the Institute of Problems of Information Science of the USSR Academy of Sciences.

4. P.M. Geruni. "The Development of the First Radio Optical Telescope."

Recommended by the All-Union Scientific Research Institute of Radio Physics Measurements.

In conformity with the Statute on the Lenin Prize in Science and Technology the works, which participate in the competition, should be discussed thoroughly and in principle in the press, on television and radio broadcasts, at meetings and conferences of scientific and scientific and technical societies, at meetings of scientific and scientific and technical councils, and at assemblies of labor collectives. The discussions should be given the nature of a debate, the opinions and evaluations of the public at large should be publicly revealed.

The holding of the discussion is organized by the editorial boards of newspapers and journals, the USSR State Committee for Television and Radio Broadcasting, and executives of associations, enterprises, scientific institutions, higher educational institutions, scientific and scientific and technical societies, and public organizations.

The materials of the discussions, opinions, reviews, remarks, and suggestions are accepted by the Committee until 15 February of this year.

It is possible to obtain information on the place and time of the holding of the public discussion of each work, which is being organized by the Committee, at the telephone numbers: 250-38-08, 250-19-47, and 250-37-14.

The address of the Committee: 125047, Moscow, A-47, 3-ya Tverskaya-Yamskaya Ulitsa, Building 46.

UkSSR State Prizes in Science and Technology for 1989

907A0119A Kiev PRAVDA UKRAINY in Russian 24 Dec 89 pp 1, 2

[Article: "On the Awarding of the 1989 Ukrainian SSR State Prizes in Science and Technology. Decree of the Ukrainian CP Central Committee and the Ukrainian SSR Council of Ministers"]

[Text] The Ukrainian CP Central Committee and the Ukrainian SSR Council of Ministers, having considered the representation of the Committee for Ukrainian SSR State Prizes in Science and Technology attached to the Ukrainian SSR Council of Ministers, resolve to award the 1989 Ukrainian SSR State Prizes to:

In Science and Technology

1. Academician of the Ukrainian SSR Academy of Sciences Igor Vladimirovich Skripnik, director of the Institute of Applied Mathematics and Mechanics of the Ukrainian SSR Academy of Sciences; Academician Vladimir Aleksandrovich Marchenko and Doctor of Physical Mathematical Sciences Yevgeniy Yakovlevich Khruslov, heads of departments of the Physical Technical Institute of Low Temperatures of the Ukrainian SSR Academy of Sciences—for the series of works "Boundary Problems of Mathematical Physics in Domains With a Fine-Grained Boundary."

2. Doctor of Physical Mathematical Sciences Ivan Dmitriyevich Turyanitsa, prorector, Doctors of Physical Mathematical Sciences Vladimir Yuliyevich Slivka and Vasiliy Vasilyevich Khimints, heads of chairs, Doctors of Physical Mathematical Sciences Dmitriy Ivanovich Bletskan and Nikolay Ivanovich Dovgoshey, professors, Candidates of Physical Mathematical Sciences Aleksandr-Yevgeniy Aleksandrovich Kikineshi and Ivan Ivanovich Turyanitsa, heads of laboratories, Candidates of Physical Mathematical Sciences Aleksandr Nikolayevich Borets and Dmitriy Grigoryevich Semak, docents, personnel of Uzhgorod State University; Doctor of Technical Sciences Yuriy Yuryevich Firtsak, director of the Kvant Special Design and Technological Bureau attached to the same university—for the series of works "The Development and Study of Complex Noncrystalline Chalcogen Materials and the Production on Their Basis of Elements of Optoelectronics and Laser Equipment."

3. Academician of the Ukrainian SSR Academy of Sciences Yuriy Yuryevich Gleba, supervisor of the

Department of Cell Biology and Engineering of the Institute of Botany imeni N.G. Kholodnyy of the Ukrainian SSR Academy of Sciences, supervisor of the work, Candidate of Biological Sciences Igor Klimentyevich Komarnitskiy, deputy supervisor, Candidates of Biological Sciences Vladimir Anatolyevich Sidorov and Nikolay Mikhaylovich Piven, heads of laboratories, Candidates of Biological Sciences Aleksandr Stanislavovich Parokonnyy and Nikolay Vladimirovich Borisyuk, scientific associates, personnel of the same department—for the series of works "The Organization and Expression of Genetic Material in Reconstructed Cellular Systems."

4. Academician of the Ukrainian SSR Academy of Sciences Yevgeniy Fedorovich Shnyukov, director of the Institute of Geological Sciences of the Ukrainian SSR Academy of Sciences, supervisor of the work, Doctors of Geological Mineralogical Sciences Yuriy Vladimirovich Dukelskiy-Teslenko, Vadim Ivanovich Lyalko, and Dmitriy Yeliseyevich Makarenko, heads of departments, Candidate of Geological Mineralogical Sciences Petr Fedoseyevich Gozhik, deputy director, Candidate of Geological Mineralogical Sciences Viktor Ivanovich Melnik, lead scientific associate, Candidate of Geological Mineralogical Sciences Yuriy Ivanovich Inozemtsev, senior scientific associate, Candidate of Naval Sciences Lev Ivanovich Mitin, senior scientific associate, personnel of the same institute; Oleg Grigoryevich Sidenko, chief geologist of the Crimean Hydrogeological Expedition; Candidate of Geological Mineralogical Sciences Aleksandr Teofilovich Bogayets (posthumously)—for the work "Geologiya shelfa USSR" [Geology of the Shelf of the Ukrainian SSR] in eight volumes, which was published in 1981-1987.

5. Doctor of Philological Sciences Tatyana Kupriyanovna Chertorizhskaya, lead scientific associate-consultant of the Institute of Linguistics imeni A.A. Potebnya of the Ukrainian SSR Academy of Sciences, supervisor of the work, Candidate of Philological Sciences Nina Grigoryevna Ozerova, acting head of a department, Candidates of Philological Sciences Viktor Mikhaylovich Britsyn, Lidiya Alekseyevna Rodnina, and Neonila Petrovna Romanova, senior scientific associates, Candidate of Philological Sciences Lyudmila Makarovna Stoyan, junior scientific associate, personnel of the same institute; Doctor of Philological Sciences Vasiliy Semenovich Vashchenko, former worker of Dnepropetrovsk State University imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey; Candidate of Philological Sciences Nataliya Petrovna Matveyeva, docent of the Kiev Institute of Construction Engineers—for the lexicographic work "Slovnik movi Shevchenko" [A Dictionary of the Language of Shevchenko] (in two volumes), which was published in 1964, and "Slovar yazyka russkikh proizvedeniy Shevchenko" [A Dictionary of the Language of the Russian Works of Shevchenko] (in two volumes), which was published in 1985-1986.

6. Doctors of Physical Mathematical Sciences Anatoliy Afanasyevich Kirilenko, Sergey Aleksandrovich Masalov, and Yuriy Konstantinovich Sirenko, heads of departments, Candidate of Physical Mathematical Sciences Leonid Antonovich Rud, senior scientific associate, personnel of the Institute of Radio Physics and Electronics of the Ukrainian SSR Academy of Sciences; Doctor of Physical Mathematical Sciences Nikolay Antonovich Khizhnyak, chief of a department of the Kharkov Physical Technical Institute of the Ukrainian SSR Academy of Sciences; Doctor of Physical Mathematical Sciences Nikolay Nikolayevich Voytovich, head of a department of the Institute of Applied Problems of Mechanics and Mathematics of the Ukrainian SSR Academy of Sciences; Doctor of Physical Mathematical Sciences Sergey Leonidovich Prosvirnin, lead scientific associate of the Radio Astronomy Institute of the Ukrainian SSR Academy of Sciences; Doctors of Physical Mathematical Sciences Boris Zakharovich Katsenelenbaum and Aleksey Nikolayevich Sivov, lead scientific associates of the Institute of Radio Engineering and Electronics of the USSR Academy of Sciences; Doctor of Physical Mathematical Sciences Vladimir Georgiyevich Sologub (posthumously)—for the series of works "The Theory of Resonance Wave Scattering and Its Applications in Radio Physics."

7. Anatoliy Aleksandrovich Cherevatyy, general director, Vladimir Mikhaylovich Kolisnichenko, chief construction worker, Nikolay Nikolayevich Batkovskiy, senior foreman, Vasiliy Zakharovich Linnikov, brigade leader, personnel of the Sevastopolskiy morskoy zavod imeni Sergo Ordzhonikidze Production Association; Aleksandr Ivanovich Ivashura, supervisor of a group for the superintendence of the building of ships for the USSR Ministry of the Maritime Fleet at the same association; Candidate of Technical Sciences Aleksandr Aleksandrovich Aliseychik, chief designer, Ivan Dmitriyevich Goncharenko and Stanislav Fedorovich Korolev, lead engineers, personnel of the Korall Central Design Bureau; Vladimir Sergeyevich Motov, chief engineer of the Sevastopol Era Enterprise; Aleksey Yakovlevich Sheverdyayev, captain of the Titan-5 floating crane of the Chernomorneftegazprom Petroleum and Gas Production Association—for the development and the assimilation of the series production of highly efficient heavy marine self-propelled floating cranes of a new generation with a lifting capacity of 140 and 500 tons.

8. Corresponding Member of the Ukrainian SSR Academy of Sciences Yevgeniy Ivanovich Kvasnikov, adviser of the board of directors of the Institute of Microbiology and Virology imeni D.K. Zabolotnyy of the Ukrainian SSR Academy of Sciences, Candidate of Biological Sciences Nadezhda Konstantinovna Kovalenko, lead scientific associate of the same institute; Doctor of Medical Sciences Yuriy Grigoryevich Grigorov, supervisor of a laboratory, Candidate of Medical Sciences Yelena Vasilyevna Orlova, senior scientific associate, personnel of the Institute of Gerontology of the USSR Academy of Medical Sciences; Candidate of Biological Sciences Tatyana Timofeyevna Gritsenko, lead scientific associate, Candidate of Agricultural Sciences Lidiya Vasilyevna Andriyevskaya, senior scientific

associate, Lidiya Vasilyevna Masich, scientific associate, Natalya Ivanovna Vishnevskaya, process engineer of an experimental technological plant, personnel of the Ukrainian Scientific Research Institute of the Meat and Dairy Industry; Vitaliy Konstantinovich Solomakha, deputy chairman of the Ukrainian SSR State Agroindustrial Committee; Pavel Alekseyevich Klimovich, director of the Alushta Dairy Complex—for the series of works "The Development of the Scientific Principles and Technology of the Biologically Active Dairy Product 'Gerolakt' and the Bacterial Leaven 'Streptosan,' Their Industrial Production and Use for the Purpose of Improving the Structure of the Diet of the Population of Older Age."

9. Doctor of Veterinary Sciences Vladimir Filippovich Romanenko, director of the Ukrainian Scientific Research Institute of Agricultural Microbiology, supervisor of the work, Candidate of Veterinary Sciences Olga Grigoryevna Pruss, senior scientific associate, Nina Vasilyevna Babich, junior scientific associate, personnel of the same institute—for the formulation and implementation of a set of steps for the prevention and elimination of enzootic encephalomyelitis (Teschen disease) of hogs and the development for this purpose of a set of diagnosticums and virus vaccines.

10. Candidate of Agricultural Sciences Leonid Andreyevich Anishin, senior scientific associate of the Main Administration of Scientific and Technical Progress in Areas of the Agroindustrial Complex of the Ukrainian SSR, supervisor of the work; Candidate of Agricultural Sciences Svyatoslav Vasilyevich Yakubovskiy, general director, Nikolay Mikhaylovich Chuprinskiy, senior scientific associate, Nikolay Filippovich Zinchuk, director of the Elite Seed Sovkhoz imeni XXV syezda KPSS, personnel of the Rovno Elita Scientific Production Association; Candidate of Economic Sciences Vladimir Mikhaylovich Yefimchuk, first deputy chairman of the Cherkassy Oblast Agroindustrial Committee; Candidate of Agricultural Sciences Miroslav Fedorovich Kushitskiy, deputy director of the Ternopol Oblast State Agricultural Experimental Station; Candidate of Agricultural Sciences Mariya Vasilyevna Stryuk, head of a department of the Khmelitskiy Elita Scientific Production Association; Candidate of Agricultural Sciences Anastasiya Semenovna Azarenkova, senior scientific associate of the Scientific Research Institute of Agriculture of the Nonchernozem Zone of the Ukrainian SSR; Leontiy Logvinovich Zinevich, deputy chief of a main administration of the Ukrainian SSR Agroindustrial Committee; Nikolay Petrovich Sobchuk, chairman of the 40 let Oktyabrya Kolkhoz of Vasilkovskiy Rayon of Kiev Oblast—for the development and introduction of a new integrated technology of the cultivation of corn in the Lesostep and Polesye of the Ukrainian SSR.

11. Doctor of Medical Sciences Kirill Dmitriyevich Toskin, head of a chair, Candidate of Medical Sciences Viktor Nikolayevich Starosek, docent, Candidate of Medical Sciences Sergey Dmitriyevich Myrkin, lecturer, personnel of the Crimean Medical Institute; Doctor of Medical Sciences Ivan Prokofyevich Tomashuk, lead surgeon of the 408th military hospital; Doctor of Medical Sciences Vladimir Ivanovich Lupaltsov, head of a chair of the Kharkov Medical Institute; Doctor of Medical Sciences Taras Adamovich Kadoshchuk, head of a chair of the Vinnitsa Medical Institute imeni N.I. Pirogov; Doctor of Medical Sciences Ivan Stepanovich Belyy, professor, Candidate of Medical Sciences Vladimir Ivanovich Desyaterik, docent, personnel of the Dnepropetrovsk Medical Institute; Mikhail Dmitriyevich Semin, senior scientific associate of the Kiev Scientific Research Institute of Clinical and Experimental Surgery—for the series of works "The Experimental Clinical Study of the Etiology and Pathogenesis and the Development and Introduction of Active Methods of the Treatment of Acute Destructive, Biliary, Post-Operative, and Chronic Pancreatites."

12. Doctor of Technical Sciences Oleg Nikolayevich Kukushkin and Candidate of Technical Sciences Semen Davidovich Grinberg, heads of departments, Candidate of Technical Sciences Vladimir Aleksandrovich Chigrinskiy, head of a laboratory, Candidates of Technical Sciences Yuriy Panteleymonovich Karpinskiy and Valeriy Ivanovich Loshkarev, senior scientific associates, personnel of the Institute of Ferrous Metallurgy; Candidate of Technical Sciences Vladimir Ivanovich Stakhen, chief of an administration of the USSR Ministry of Metallurgy; Candidate of Technical Sciences Aleksandr Petrovich Yegorov, chief engineer, Candidate of Technical Sciences Vladimir Sevestyanovich Tkachev, head of a laboratory, Vladimir Nikolayevich Kuvayev, scientific associate, personnel of the Scientific Production Association for the Automation of Ferrous Metallurgy; Mikhail Ivanovich Kostyuchenko, chief of a shop of the Krivoy Rog Krivorozhstal Metallurgical Combine imeni V.I. Lenin—for the development and introduction of methods of the automated control of the continuous rolling mode for the implementation of a metal-saving technology of section and stranded wire production.

For Textbooks for Students of Higher Educational Institutions

1. Academician of the Ukrainian SSR Academy of Sciences Ivan Ivanovich Lyashko, head of a chair of Kiev State University imeni T.G. Shevchenko, Candidates of Physical Mathematical Sciences Aleksey Klimentyevich Boyarchuk, Yakov Gavrilovich Gay, and Aleksey Feofilovich Kalayde, docents of the same university—for the textbook "Matematicheskiy analiz" [Mathematical Analysis], which was published in 1983-1987.

2. Doctor of Technical Sciences Alfred Eduardovich Simson, head of a chair, Candidate of Technical Sciences Sergey Grigoryevich Zhalkin, prorector, Candidate of Technical Sciences Anatoliy Zakharovich Khomich, professor, Candidate of Technical Sciences Aleksandr Ariyevich Kurits, senior scientific associate, personnel of the Kharkov Institute of Rail Transport Engineers imeni S.M. Kirov; Doctor of Technical Sciences Yevgeniy

Tarasovich Bartosh, head of a chair of the All-Union Correspondence Institute of Rail Transport Engineers—for the textbook "Teplovoznyye dvigateli vnutrennego sgoraniya" [Locomotive Internal Combustion Engines], which was published in 1987 (2nd edition).

[Signed] Secretary of the Ukrainian CP Central Committee V. Ivashko

Chairman of the Ukrainian SSR Council of Ministers V. Masol

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DATE FILMED

29 March 1990